

Course Descriptions

All courses are offered on a variable schedule unless otherwise noted.

Art

- ART 500 Introduction to Art Criticism** 3 cr.
Problems of describing, analyzing, interpreting, and evaluating art. Attention given to the history, purposes, conceptual bases and methods of art criticism as well as to critical performances.
- ART 508 20th Century Art History** 3 cr.
Survey of major developments from post-impressionism to post-modernism and the contemporary: Europe and the United States. Every spring.
- ART 580 Computer Graphics** 3 cr.
Introduction to terminology, methods, processes, craft, and technology of the computer graphics designer; emphasis on theory and application of the Macintosh computer system. May be taken only 1 time for credit. Two hrs. lecture and 2 hrs. lab.
- ART 590 Special Topics in Art** 1-6 cr.
Concepts or media not regularly presented, using special resources. Lecture and studio or lecture only. Offered irregularly. Prerequisite: permission of the instructor.
- ART 602 Philosophy of Art Education** 3 cr.
Analysis and evaluation of major competing philosophic systems. Attention to their value structures in relation to alternative theories and conceptions of art education.
- ART 605 Curriculum in Art Education** 3 cr.
Concepts, problems, and issues in curriculum theory in educational programs. Development of curricula for public school art instruction.
- ART 607 Advanced Graphic Design Workshop** 3 cr.
Fundamentals of applied design. Graphics problems in advertising and commercial art; class problems in communication arts; commercial processes and techniques; use of professional materials. Two hrs. lecture, 2 hrs. lab. Repeatable 3 times.
- ART 612 Advanced Drawing Workshop** 3 cr.
Studio investigation of drawing. Critical, conceptual, and technical skills with content chosen by student and instructor. Two hrs. lecture, 2 hrs. lab.
- ART 621 Advanced Painting Workshop** 3 cr.
Studio problems in painting. Emphasis on independent creative work. Seminar, discussion, and criticism. Two hrs. lecture, 2 hrs. lab. Repeatable 3 times.
- ART 622 Advanced Ceramics Workshop** 3 cr.
Study of ceramic form as it relates to utilitarian and environmental situations. The interaction of human scale with functional ceramic design. Seminar, discussion, and criticism. Two hrs. lecture, 2 hrs. lab. Repeatable 3 times.
- ART 632 Advanced Printmaking Workshop** 3 cr.
Studio investigation of printmaking. Critical, conceptual, and technical skills as applied to the aesthetics of printmaking. Two hrs. lecture, 2 hrs. lab. Repeatable 3 times.
- ART 635 Advanced Photography Workshop** 3 cr.
Studio investigation of photography. Critical, conceptual, and technical skills. Two hrs. lecture, 2 hrs. lab. Repeatable 3 times.
- ART 640 Advanced Sculpture Workshop** 3 cr.
Studio problems in sculpture. Use of traditional and contemporary forming techniques in independent creative work. Two hrs. lecture, 2 hrs. lab. Repeatable 3 times.

ART 690 Special Topics in Art 3 cr.
Concepts or media not regularly presented, using special resources. Lecture and studio or lecture only. Variable. Prerequisite: permission of instructor.

ART 698 Readings in Art Education 3 cr.
Advanced individualized study in art education scholarship. Seminars, readings, research. Prerequisite: completion of Professional Core.

ART 699 Individual Research in Art Education 3 cr.
Advanced development of an investigative or creative potential. Repeatable 1 time. Prerequisite: graduate art student and recommendation of graduate faculty member.

ART 700 Master's Research Paper or Project 3 cr.
Individual investigation or project related to the area of concentration and professional education. Independent Study form to be submitted with registration.

Biology

Note: equivalent courses taken at other institutions will be considered as prerequisites.

BIOL 502 Evolution 3 cr.
Theories, evidences, and mechanisms of evolution. Three hrs. lecture. Fall of odd-numbered years. Prerequisite: BIOL 150 or permission of instructor.

BIOL 504 Histology 4 cr.
Microscopic structure and function of tissues and selected organs of vertebrates. Basic laboratory preparative techniques and tissue recognition. Two hrs. lecture, two 2-hr. labs. Spring of even-numbered years.

BIOL 506 Ornithology 4 cr.
Anatomy, physiology, behavior, ecology and evolution of birds. Laboratory emphasis on identification of regional birds at the species and family level. Two hrs. lecture, one 4-hr. lab. Binoculars required. Every Spring. Prerequisite: vertebrate zoology or permission of instructor.

BIOL 507 Biological Systematics 3 cr.
Principles, concepts, and methodologies used in systematic biology. Methods for reconstructing the evolutionary relationships of plant and animal taxa (including phenetic and cladistic analyses). Procedures for description, classification, and analysis of earth's biodiversity. Three hrs. lecture. Spring of odd-numbered years. Prerequisite: BIOL 402 or permission of instructor.

BIOL 510 Plant Diseases 3 cr.
Nature, cause, and control of disease in plants. Plant pathogens: nematodes, viruses, bacteria, and fungi in greenhouse, field, and forest plants. Laboratory on preparing specimens according to phytopathological principles. Two hrs. lecture, one 2-hr. lab. Spring of odd-numbered years.

BIOL 511 Invertebrate Zoology 4 cr.
Structure, physiology, life history, and natural history of invertebrate groups. Emphasis on local fauna. Two hrs. lecture, two 2-hr. labs. Every Spring.

BIOL 512 General Parasitology 4 cr.
Principles of parasite structure, function, and host-parasite relations. Two hrs. lecture, two 2-hr. labs. Fall of even-numbered years.

BIOL 514 Quantitative Analysis of Vertebrate Populations 3 cr.
A survey of quantitative techniques used to describe, analyze, and model vertebrate population phenomena and interactions among populations. Every Spring. Prerequisites: MATH 120 and graduate standing.

- BIOL 517 Ichthyology** 3 cr.
The study of fishes with emphasis on structure and function, development, behavior, ecology, and systematics. Two hrs. lecture, one 2 hr. lab. Every Fall.
- BIOL 520 Fish Management and Culture** 3 cr.
Contemporary problems encountered with Fisheries Management. Study of fish culture; alternatives of commercial harvest and culture. Three 1-hr. lectures and one 3-hr. lab. Field trips to be arranged. Every Spring. *Prerequisite: MATH 209 Introduction to Probability and Statistics or permission of instructor.*
- BIOL 521 Sample Design and Analysis of Plant Communities** 3 cr.
The ecology of plant communities in the mid-Atlantic; plant community concepts and attributes; environmental factors influencing the distribution and abundance of plants: light, temperature, fire, soil, water, methods of sampling vegetation; quantitative analysis of vegetation data; multivariate methods of data interpretation including classification and ordination; collection and interpretation of field data; emphasis on modern computer methods. Lecture/lab. Every Fall. *Prerequisites: BIOL 314 and BIOL 340.*
- BIOL 522 Herpetology** 3 cr.
The structure, behavior, ecology, evolution, and taxonomy of amphibians and reptiles. Laboratory emphasis on identification, anatomy, and ecology of local species; techniques of collecting; estimating population sizes, and home ranges. Two hrs. lecture, one 3-hr. lab. Every Spring. *Prerequisite: BIOL 150.*
- BIOL 523 Mammalogy** 4 cr.
The structure, taxonomy, behavior, ecology, evolution, and public health significance of mammals and history of the science of mammalogy. Laboratory emphasizes anatomy, identification, capture techniques, habitat analysis, and home-range and population characterization. Three hrs. lecture, one 3-hr. lab. Every Fall. *Prerequisite: BIOL 150.*
- BIOL 530 Limnology** 4 cr.
The study of inland waters; physical, chemical and biological aspects. An overview of hydrobiology. Laboratory emphasis on collection and analysis of data from aquatic environments. Graduate level credit requires supplemental activity (usually a project and written report) by student. Two hrs. lecture, one 4-hr. lab per week. Every Fall. *Prerequisite: BIOL 340.*
- BIOL 535 Molecular Biology** 4 cr.
Modern molecular concepts and techniques such as molecular cell function, DNA replication, PCR, protein synthesis, restriction enzyme analysis, DNA sequencing and DNA fingerprinting. Two hrs. lecture, two 2-hr. labs per week. Every Spring. *Prerequisite: BIOL 304.* Course not repeatable.
- BIOL 536 Electron Microscopy for Biologists** 4 cr.
Principles and techniques of electron microscopy; thin and thick sectioning, positive staining, freeze etch. Use of transmission and scanning electron microscopes for animal and plant tissues, micro-organisms, and particulates. One hr. lecture, two 3-hr. labs. Spring of odd-numbered years. Enrollment limited to 6, preference to students with an active research project. *Prerequisites: BIOL 310, Physics 216, Chemistry 302; cumulative GPA 3.0; permission of instructor.*
- BIOL 537 Molecular Biology Seminar** 1 cr.
Current topics in molecular biology presented by students, faculty and invited speakers coupled with in-depth analysis and discussion. Fall semester. *Prerequisites: graduate standing; BIOL 435 or permission of instructor.*
- BIOL 538 Biotechnology Laboratory** 3 cr.
Advanced techniques in molecular biology. Topics vary depending on instructors. Topics may include cell culture methods, PCR and DNA sequencing, immunocytochemistry, electrophoretic separation and analysis. One 1-hour lecture and two 2-hour labs. Spring. *Prerequisites: BIOL 435/535 or permission of the instructor.*
- BIOL 539 Environmental Toxicology** 3 cr.
An interdisciplinary study of the major classes and properties of pollutants, ecotoxicology testing methods and their effects on living organisms and the ecosystem. Two hrs. lecture, two hrs. lab. *Prerequisites: one year general biology.*
- BIOL 540 Developmental Biology** 4 cr.
A classical and modern study of processes producing structural and functional changes during the development of plants and animals. Three hrs. lecture, two hrs. lab. *Prerequisites: one year general biology.*
- BIOL 550 Ecology and Management of Wildlife Populations** 4 cr.
Study of factors that determine the distribution and abundance of wildlife populations and current management practices used to manipulate wildlife populations. Two-three field trips will be used to gain knowledge of regional management practices. Three hrs. lecture. Fall only. *Prerequisites: BIOL 406, 423 or 426.*
- BIOL 600 Methods of Research in Biological Sciences** 2 cr.
Understanding the scientific method, improving scientific writing skills, and practical experience in computer analysis of biological data. Major projects include writing a thesis research proposal and a scientific paper. Every Fall. *Prerequisites: MATH 680 (or concurrent enrollment) or instructor's permission with a basic knowledge of statistics.*
- BIOL 601 Laboratory Teaching Experience** 2 cr.
Methods and experience of instruction in the introductory biology laboratory including stimulating interest, presenting pre-lab instruction, conducting laboratory exercises, generating discussion, writing quizzes and laboratory practical examinations, and assessing student performance. Fall, Spring. *Prerequisite: graduate standing in Wildlife/Fisheries Biology or Applied Ecology and Conservation Biology.*
- BIOL 609 Plant Ecology** 3 cr.
Ecological principles and relationships at the organism, population, and community levels. The plant and the ecosystem. Field trips and field analysis of plant communities. One hr. lecture and 4 hrs. lab. Spring of odd-numbered years. *Prerequisites: BIOL 340, 314 or 603, 8 hrs. general chemistry or permission of instructor.*
- BIOL 610 Animal Physiology** 3 cr.
Physiological systems and experiments on laboratory animals. Two hrs. lecture and 2 hrs. lab. Fall of even-numbered years. *Prerequisites: one year college chemistry and major in biology or chemistry.*
- BIOL 612 Animal Ecology** 3 cr.
Ecological principles and relationships of organism, population, and community levels. The animal's relation to ecosystems. Three hrs. lecture. Spring of even-numbered years. *Prerequisites: one year bioscience or zoology, BIOL 411, 340, and 8 hrs. general chemistry or permission of instructor.*
- BIOL 613 Plant Physiology** 3 cr.
Theory and techniques. Cell ultrastructure and function, translocation of metabolites, plant growth regulators, photobiology, and the physiology of development. Two hrs. lecture, 2 hrs. lab. Spring of even-numbered years. *Prerequisites: BIOL 303, one year inorganic chemistry, one year organic chemistry.*
- BIOL 621 Terrestrial Biogeochemistry** 3 cr.
Terrestrial biogeochemistry focuses on the interactions between ecology and geochemistry. Concepts, theory, and applications through readings, lectures, and independent projects. Three hrs. lecture. Spring of even-numbered years.
- BIOL 622 Ecosystem Ecology** 3 cr.
Overview of ecosystem ecology concepts, addressing multiple topics including: ecosystem definition, primary/secondary productivity, ecosystem energetics, trophic structure, stability/resilience, nutrient cycling, ecosystem management, and the importance of ecological models. Three hrs. lecture. Fall of even-numbered years.
- BIOL 623 Landscape Ecology** 4 cr.
The effects of spatial pattern of resources; its causes, development and importance for ecological processes. Concepts, methods and applications of

landscape ecology through readings of classic and contemporary literature, lectures, lab exercises designed to provide "hands-on" experience with quantitative methods and completion of an independent project. Three hrs. lecture, one hr. lab. Fall of even-numbered years. *Prerequisites:* course in general ecology; permission of instructor.

BIOL 625 Wildlife Habitat Ecology and Analysis 3 cr.

Concepts and measurement of wildlife-habitat relationships, and the management of wildlife habitat. Three hrs. lecture. Fall of odd-numbered years. *Prerequisite:* graduate standing.

BIOL 626 Wildlife Habitat Ecology and Analysis Laboratory 1 cr.

Techniques used in wildlife habitat analysis and evaluation, including plot/plotless sampling, multivariate approaches, and use of remotely sensed land data. One 3-hr lab. Fall of odd-numbered years. *Prerequisite:* graduate standing.

BIOL 631 Stream Ecology 3 cr.

Ecology of lotic systems common to North America. Stream hydrology, water chemistry, fish and invertebrate ecology, nutrient dynamics, restoration ecology of impaired freshwater systems, and conservation biology of freshwater species. Three hrs. lecture and two optional field trips with laboratory exercises. Fall of even-numbered years. *Prerequisites:* BIOL 340, 411, and 430 or permission of instructor.

BIOL 632 Land Margin Interactions 4 cr.

Integrative principles of landscape ecology, estuarine ecology, and coastal oceanography, emphasizing biogeochemical processes and transformations as water moves through the watershed, estuary and into the ocean. Using local examples from the Chesapeake region, themes will include the water cycle (hydrology for land; circulation for estuaries and coastal ocean); carbon, nitrogen, and phosphorus cycles; and anthropogenic effects such as land use change and pollution. Four hrs. lecture and two required field trips. Fall of odd-numbered years.

BIOL 640 Population and Conservation Genetics 3 cr.

Importance of genetics in the management of game and non-game species will be emphasized with special reference to genetic management of threatened, rare or endangered species. Two hrs. lecture, one 3-hr. lab. Fall. *Prerequisite:* one course in genetics.

BIOL 641 Conservation Biology & Reserve Design 3 cr.

Examination of modern topics in conservation biology emphasizing impacts of habitat insularization and related landscape perturbations on population dynamics, social structure, genetic diversity, and ecological interactions of organisms. Application of these factors in the design of nature reserves and maintenance of biodiversity. Lecture. Fall only of odd-numbered years. *Prerequisite:* graduate standing.

BIOL 643 Ethics, Economics and Politics in Conservation 2 cr.

An examination of political and economic considerations associated with protection of endangered species and special habitats. Case histories of conflicts among competing forces for natural resources. Fall only of odd-numbered years.

BIOL 650 Special Topics in Fisheries/Wildlife/Applied Ecology and Conservation Biology 2-4 cr.

Course content and credit hours vary depending on the course topic and instructor. Course topics will include Ecology, Evolution, and Management of Tropical Fishes; Techniques in Field Ecology; Advanced Animal Behavior; Aquatic Entomology; and Conservation and Management in Tropical Ecosystems. Consult Director of AL or Chair of Biology for current offerings. Fall, Spring.

BIOL 694 Graduate Seminar in Fisheries/Wildlife/Applied Ecology and Conservation Biology 1 cr.

Readings and discussion of current subjects in the fields of ecology and management. Student presentations coupled with in-depth analysis and discussion of the scientific merit and political ramifications of biological research. Offered irregularly.

BIOL 699 Individual Research in Fisheries/Wildlife/Applied Ecology and Conservation Biology 2-4 cr.

Topic and study outline to be approved by the Biological Science Graduate Program Coordinator prior to registration. Fall, Spring. *Prerequisites:* graduate standing, consent of instructor, and consent of Chair of the Biology Department or Director of AL.

BIOL 710 Thesis 1-9 cr.

Activities related to the production of a research thesis on an approved topic. Graded P/N. Fall, Spring, Summer.

Chemistry

CHEM 511 Inorganic Chemistry 3 cr.

Theories of bonding, symmetry concepts, group theory, reaction mechanisms, spectroscopy, structure, stereochemistry, and biological aspects. Three hrs. lecture. *Prerequisite:* CHEM 441 or permission of instructor.

CHEM 541 Physical Chemistry Lecture I 3 cr.

Theory and applications of the principles of physical chemistry. Equilibria, gas laws, thermodynamics, electrochemistry, structures, and properties. Three hrs. lecture. *Prerequisite:* 16 cr. in chemistry from the following: CHEM 101, 102, 201, 301, 302; MATH 227, 228 and 320 or 432; and Physics 215 and 216 or equivalent or permission of instructor.

CHEM 542 Physical Chemistry Lecture II 3 cr.

Quantum theory, statistical thermodynamics, chemical dynamics, spectroscopy, and structures. Three hrs. lecture. *Prerequisite:* CHEM 541.

CHEM 545 Physical Chemistry Laboratory I 1 cr.

Experimental physical chemistry. One 3-hr. lab. *Prerequisite or corequisite:* CHEM 541

CHEM 546 Physical Chemistry Laboratory II 1 cr.

Continuation of CHEM 545. One 3-hr. lab. *Prerequisite or corequisite:* CHEM 542.

CHEM 555 Biochemistry I 3 cr.

The chemistry and metabolism of biological compounds, biochemical thermodynamics, enzyme mechanisms, and kinetics. Three hrs. lecture. Fall semester. *Prerequisites:* CHEM 301 and 302; BIOL 149 or permission of the instructor.

CHEM 557 Biochemistry II 3 cr.

This course is a continuation of Biochemistry I. Metabolic processes and their conservation among widely divergent organisms. Cell processes, their interrelation and regulation. Biochemical techniques and their applications to a variety of current biological problems. Three hrs. lecture. Spring semester. *Prerequisite:* CHEM 455.

CHEM 560 Environmental Chemistry 3 cr.

This course will investigate the chemical nature of the environment. It will develop the chemical interactions found in the atmosphere, hydrosphere, lithosphere and biosphere. Considerations of energy and energy usage will also be discussed. *Prerequisite:* Completion of CHEM 101 and 102, and any one of the following courses: BIOL 430, GEOG 432, CHEM 320 and 321.

Communication Studies

CMST 590 Special Topics in Communication Studies 1-6 cr.
Research or applied experience on an announced selected topic. May be repeated to a maximum of 6 credits. *Permission of department required.*

CMST 699 Individual Research in Communication Studies 1-6 cr.
Individual research in a topic related to communication. Topic and study outline to be approved by department chair prior to registration. Written and oral reports required. Can be repeated to a total of 6 credits.

Computer Science

NOTE: FSU graduate students may take any computer science graduate courses by permission of instructor.

COSC 510 Data and Computer Communication 3 cr.
Fundamentals of data communications. Transmission media characteristics, data encoding, and multiplexing. Causes of transmission errors and data link control. Circuit switching, message packing, and packet switching. Local area networks, introduction to terrestrial and satellite networks, ISDN, and future trends. *Prerequisite: COSC 365 or permission of the instructor.*

COSC 520 Robotics and Computer Control 3 cr.
Introduction to field of robotics: applications, safety, sensors, Robotics Languages Model for Computer-Aided Design (CAD), speech recognition and generation. Integration of robots with artificial intelligence. *Prerequisites: PHYS 215 or PHYS 261, COSC core courses or permission of the instructor.*

COSC 530 Computer Education 3 cr.
A practical study of contemporary topics for students with a computing background. Emphasis on development and use of training/teaching materials. *Prerequisite: permission of instructor.*

COSC 550 Programming Language Structures 3 cr.
Features of existing programming languages and underlying concepts. Syntax and semantics, simple statements, grouping of statements, scopes and storage allocations, subroutines. List processing and string manipulation languages. *Prerequisites: COSC 310 or permission of the instructor.*

COSC 555 Artificial Intelligence 3 cr.
An introduction to knowledge representation and inference: topics include logic, semantic networks, frames and rule-based reasoning. Natural language processing; topics include pattern recognition, pattern association and computer vision. *Prerequisite: COSC 310 or permission of instructor.*

COSC 560 Operating Systems Concepts 3 cr.
Detailed study of operating systems concepts. Process management, scheduling, time slicing, concurrency, mutual exclusion, semaphores, resource management, memory mapping, virtual systems, mass storage, file systems. Case studies of operating systems. *Prerequisites: COSC 201 and COSC 365 or permission of the instructor.*

COSC 565 Computer Systems Architecture 3 cr.
Architecture of large computing systems. Instruction set architecture and RISC. Design of high-speed arithmetic units, I/O subsystems, DMA, and channels. Interrupt structures. Horizontal vs. vertical microprogramming. Memory system hierarchy with emphasis on cache, virtual memory, and interleaving. Introduction to parallel processing and advanced architectural trends. *Prerequisite: COSC 365 or permission of the instructor.*

COSC 570 Compiler Designs and Constructions 3 cr.
Detailed study of the concepts and techniques used in design and construction of a compiler. Topics include: lexical analysis, syntactic and

semantic analysis, intermediate code generation, final code generation, and optimization techniques. Each student will be required to design and implement a functional compiler or interpreter for a given language. *Prerequisites: COSC 310 and COSC 365 or permission of the instructor.*

COSC 575 Interactive Computer Graphics 3 cr.
Concepts of computer graphics. Terminology and programming primitives, raster vs. vector hardware, interaction devices, software packages, geometrical transformations, two- and three-dimensional viewing, hidden line and surface removal, object hierarchy. *Prerequisites: COSC 310 and COSC 350 or permission of the instructor.*

COSC 580 Knowledge Based Information Systems 3 cr.
Concepts of knowledge-based systems with an emphasis on expert systems. Topics include production systems, building of knowledge-based systems and future trends with expert systems. *Prerequisite: COSC 380 or permission of instructor.*

COSC 585 Theory of Computation 3 cr.
Basic theoretical principles embodied in formal languages, automata, computability, and computational complexity. Emphasis is placed on developing formal description of computers and computational processes, and practical implications of theoretical results. *Prerequisites: COSC 310 or permission of instructor.*

COSC 591 Seminar in Computer Science 3 cr.
Group study of advanced topics under faculty supervision. Departmental approval is required. *Prerequisite: department approval.*

COSC 599 Individual Problems in Computer Science 3 cr.
Independent study of advanced topics under faculty supervision. Departmental approval is required. *Prerequisite: department approval.*

COSC 600 Computer Programming Concepts 3 cr.
Object oriented programming and programming design; sequential, selection and iteration statements; objects and relationship among objects, abstraction, encapsulation, and hierarchy. *Prerequisite: permission of instructor.*

COSC 601 Digital Logic & Computer Design 3 cr.
Basic switching theory. Design and analysis of combinational logic circuits and synchronous sequential systems. Minimization of techniques. Programmable logic and basic computer architecture. Register transfer language. Memory decoding, microprogramming, and bus structure operation. Detailed study of an actual simple minicomputer or microcomputer system. Students are required to implement a project. *Prerequisite: Admission to the Applied Computer Science Master's Program.*

COSC 610 Advanced Object-Oriented Data Structures and File Organization 3 cr.
Object-oriented data structures such as linear data structures recursions, trees, graphs, searching and sorting algorithms, and file organizations using object-oriented programming language. *Prerequisite: admission to Applied Computer Science master's program.*

COSC 620 Security In Computing 3 cr.
Principles and practices of computer security in various computing environments, with the focus on computational methods providing secure computing and Internet communication. Topics include: security threats in communication systems and information systems; cryptography technologies including conventional substitution/transposition codes; block ciphers and advanced encryption standards; distribution of secret key over the Internet; principles of public-key cryptography; authentication and digital signature; network security such as IPsec, SSH, Web and Email security; system security such as firewall; OS security and hardware security. *Prerequisites: admission to Applied Computer Science master's program.*

COSC 625 Advanced Software Engineering 3 cr.
Design and implementation of software using a formal specification language. Topics include management implications, software cost estimation, defect testing, software engineering environments. *Prerequisite: admission to Applied Computer Science master's program.*

- COSC 630 Web Development and Programming I** 3 cr.
Fundamentals of web programming and web technologies. Topics include web design and implementation using JavaScript, Java Beans, and XML. Developing interactive, secure, and powerful projects for the web. *Prerequisite: admission to Applied Computer Science master's program.*
- COSC 631 Web Development and Programming II** 3 cr.
Advanced web programming and web technologies concepts. Topics include Perl programming, server installation and configuration, PHP, secure sockets layer, and web services. Offered once every year and a half. *Prerequisites: admission to Applied Computer Science master's program and COSC 630.*
- COSC 635 Network and Data Communications I** 3 cr.
Basic elements of modern computer and telecommunications networks. A hybrid five-layer reference model resembling the popular TCP/IP model will be discussed. In each layer, the state-of-the-art hardware and software technologies are introduced. These include, for example, network programming in the Application Layer; TCP/UDP in the Transport Layer; Unicast and Multicast protocols in the Network Layer; and Ethernet/TDM/WDM in the Data Link Layer; fiber-optic and Mobile/Cellular in the Physical Layer. *Prerequisite: admission to Applied Computer Science master's program.*
- COSC 636 Network and Data Communications II** 3 cr.
Advanced topics, enabling technologies of networks and data communications. Introduction to important topics including distributed networks, IPV6 and advanced routing protocols, network reliability, network security, and converged network management. Enabling technologies for typical modern networks, including wireless/mobile networks, multimedia networking, and optical networks will also be covered. *Prerequisite: admission to Applied Computer Science master's program and COSC 635.*
- COSC 640 Database Management Systems I** 3 cr.
Database design and implementation, data models, database programming using relational database management systems as well as object-oriented databases. An implementation of a comprehensive project using a commercial DBMS. *Prerequisite: admission to Applied Computer Science master's program.*
- COSC 641 Database Management Systems II** 3 cr.
The function of database administration. Data recovery, security, concurrency, and integrity. Database storage, and advance database programming. A project implementation is required. *Prerequisite: COSC 640 and admission to Applied Computer Science master's program.*
- COSC 645 Data Mining** 3 cr.
Overview of data mining and its application in business. Topics include data mining models such as decision trees, genetic algorithms, neural nets, agent network technology; data mining process and discussion of practical available data mining tools. *Prerequisite: admission to Applied Computer Science master's program.*
- COSC 646 Data Warehousing** 3 cr.
A hands-on approach to the major issues facing data warehouse developers. Discussion of analysis design and management of data warehousing. Application of data warehouse in a business environment using one or more data warehouse systems. *Prerequisite: admission to Applied Computer Science master's program.*
- COSC 647 Database Security** 3 cr.
A comprehensive, in-depth discussion of the database security, including models, systems architectures, and standards. Security in object-oriented databases and in statistical databases and auditing. *Prerequisite: admission to Applied Computer Science master's program and COSC 641.*
- COSC 649 Database Administration** 3 cr.
Discussion of the database administration issues. Topics include installation, migration, upgrades, networking, security, backup and recovery, performance tuning, capacity planning and GUI development tools. *Prerequisite: admission to Applied Computer Science master's program and COSC 641.*
- COSC 690 Special Topics in Database Management Systems** 3 cr.
Study and discussion of the most recently developed topics in Database Management Systems. *Prerequisite: admission to Applied Computer Science master's program and COSC 640.*
- COSC 691 Special Topics in Data Mining & Data Warehousing** 3 cr.
A study and discussion of topics in the latest development in data mining and data warehousing. Students are required to write a paper or implement a project related to the topic. *Prerequisite: admission to Applied Computer Science master's program and COSC 645 and COSC 646.*
- COSC 700 Master Research Paper or Project** 3-9 cr.
Independent research paper or project related to the area of concentration. The topic of the paper or project description must be approved by the department graduate committee prior to registration. Every semester. *Prerequisite: admission to Applied Computer Science master's program and COSC 610, COSC 620, and COSC 625.*

Economics

- ECON 510 Resource & Environmental Economics** 3 cr.
Economic analysis of problems and policies affecting natural resource industries and the environment. Economic framework, mineral, forest, energy industries and environmental use and misuse are analyzed. Fall of even-numbered years. *Prerequisite: Economics 202 or permission of the instructor.*
- ECON 598 Readings in Economics** 3 cr.
Selected readings for primarily independent research in a field not covered by regular courses. Summaries of readings and findings compiled in a written research report. *Prerequisites: ECON 201, 202, 351, 352, and permission of the instructor and Department Chair.*

Education

- CUIN 518 Teaching Written Composition Methods in the Elementary School** 3 cr.
Language acquisition and writing, including motivation and evaluation; grammar, spelling, and editing skills.
- CUIN 520 Assessment and Measurement in Early Childhood Education** 3 cr.
A study of instruments for child development and early childhood program evaluation. Analysis of early identification programs, child-find procedures, normative data, intelligence and language tests.
- CUIN 521 Child Development for the Early Childhood Educator** 3 cr.
Educational implications for the child from birth to age eight, including the effects of early stimulation, critical periods in the child's life, species specific behaviors, and environmental variables affecting the child's development.
- CUIN 605 National Board for Professional Teaching Standards Pre-Candidacy** 3-6 cr.
Candidates are introduced to the National Board for Professional Teaching Standards. During the semester, they will complete the fieldwork that will allow them to collect and organize the evidence needed to formally apply for certification. The Instructor/Mentor will assist individuals in preparing specific content and pedagogy portfolio materials.
- CUIN 608 Middle School Curriculum** 3 cr.
The middle school movement, the nature of the middle school student, alternative school programs, strategies for implementation.
- CUIN 609 Elementary School Curriculum** 3 cr.
Trends, issues, and determinants of the elementary content areas; organizational patterns and curriculum models; application of a system for curriculum development; instructional modes; and process of curriculum planning. *Prerequisite: EDUC 640.*
- CUIN 614 Elementary School Mathematics Programs** 3 cr.
Content and organization of elementary school mathematics.
- CUIN 615 Elementary School Science Programs** 3 cr.
A survey of current elementary school science programs available for use in grades K-8. A review of the science programs rationale, organizational structure, content, methodology, and evaluational system is emphasized. Methods of program identification, selection techniques, implementation, and continuing evaluation are considered. The research seminar format is utilized in this course.
- CUIN 616 Introduction to Science Education** 3 cr.
Evolutions, philosophies, purposes, goals, and objectives; comparative science education, practical, and research literature; and professional organizations.
- CUIN 618 Elementary School Language Arts Program** 3 cr.
The content, organization, materials, and techniques for teaching elementary children English usage, spelling, oral and written composition, manuscript and cursive writing, and reading. The integration of language arts in the elementary curriculum.
- CUIN 621 Elementary School Social Studies Programs** 3 cr.
Content of elementary school social studies and the various methods of instruction and materials.
- CUIN 622 Workshop in Elementary Language Arts** 3 cr.
Developing a model and preparing instructional materials to demonstrate the interrelatedness of the elementary language arts to the Curriculum and Instruction core courses. Design and construction of educational materials for a particular age congruent with current educational theory. Presentation and sharing of individual work in a seminar. *Prerequisite: CUIN 609.*
- CUIN 623 Foundations of Early Childhood Educ.** 3 cr.
History and philosophy of early childhood education; model programs designed to implement various theories; research on the effects of model programs; and current trends and issues affecting and challenging the early childhood educator.
- CUIN 624 Parent Education** 3 cr.
Techniques used to help care-givers in the task of child rearing. Sociology of parenting, parent support services, methods of implementing study and discussion groups, and techniques employed in operating home-based child programs.
- CUIN 626 Early Childhood Teaching Methodology** 3 cr.
Analysis of the master's level teaching techniques, including environmental analysis techniques, early stimulation procedures, toy and teaching apparatus evaluation, techniques for utilizing and extending play, and specific techniques to enhance communication and self-expression.
- CUIN 639 Instructional Systems Design** 3 cr.
Development of competencies related to systems approach to instructional planning, foundations of instructional design, instructional objectives, alternate instructional models, preparation of instructional materials, strategies for implementation, and evaluation of instructional systems.
- CUIN 649 Curriculum Evaluation** 3 cr.
The process of curriculum evaluation: The collection, organization, analysis, and reporting of information essential to decision-making. Models and strategies.
- CUIN 660 Secondary School Curriculum** 3 cr.
Trends, issues, and determinants of the secondary content areas, including organizational patterns and curriculum models, application of a system for curriculum development, instructional modes, and the process of curriculum planning.
- ECED 538 Early Childhood Classroom Mgmt.** 3 cr.
For the early-childhood teacher: advanced teaching skills in nurturing the young child's social experiences, self-discipline, independence, and creativity; arranging play experiences, organizing physical space, communication with children.
- ECED 542 Administration & Supervision of Early Childhood Programs** 3 cr.
Administrative and supervisory responsibilities for the early-childhood educator in providing quality programs for young children. *Prerequisite: permission of instructor.*
- EDAD 611 Administration in the Elementary School** 3 cr.
Educational leadership of the elementary school: responsibilities, philosophies, and techniques of the principal; student activities and supporting services; necessary technical skills; reading in the field; professional organizations, literature, and ethics in elementary administration.
- EDAD 612 Administration in the Secondary School** 3 cr.
Educational leadership of the secondary school: responsibilities, philosophies, and techniques of the principal; student activities and supporting services; necessary technical skills; reading in the field; professional organizations, literature, and ethics in secondary administration.
- EDAD 628 School Law** 3 cr.
Legal bases of education including hiring and dismissal of personnel, tenure, staff liability, contractual rights and relationships, and rights of staff and clients. Spring, summer.
- EDAD 641 Educational Leadership** 3 cr.
Developmental leadership theory and strategies.
- EDAD 642 Organization and Administration of Public Schools** 3 cr.
Theories and concepts: societal forces that affect educational administration; tasks of administration, role requirements, administrative process, and division of responsibility; organizational variables; the administrator as an individual and leader; research; professional organizations; and ethics.

- EDAD 644 Public School Finance** 3 cr.
Theory, principles, and general practices. The problems of financing education, budgeting, equalization, management of school funds, and the role of local, state, and federal governments in the financing of public education.
- EDAD 646 Personnel Administration** 3 cr.
Managing human resources, including organization of the personnel functions; manpower functions of recruitment, selection, and induction; appraisal and staff development; compensation and benefits; professional negotiations; and current trends in personnel administration.
- EDAD 650 Program Development** 3 cr.
Examination of planning models and development of skills to analyze and interpret human resource data. Students plan a human service program by locating and utilizing resources and by preparing implementation strategies and evaluation mechanisms.
- EDAD 693 Practicum in Administration-Supervision** 3-6 cr.
Supervised experience based on a problem identified by the student. Emphasis on the integration of learned administrative/supervisory skills. Administrative/Supervisory responsibilities of limited depth for limited periods under joint college/school supervision. Problem areas must be submitted and approved prior to registration. Repeatable to 6 credits. *Prerequisite: approval of the Chair of Educational Professions Department.* Fall, Spring.
- EDSU 604 Supervision in the Elementary School** 3 cr.
Preparation, role, and functions of the elementary supervisor, including application of principles of learning, instruction, curriculum, and human relations skills. Development of technical skills.
- EDSU 605 Supervision in the Secondary School** 3 cr.
Preparation, role, and functions of the secondary supervisor, including application of principles of learning, instruction, curriculum, and human relations skills. Development of technical skills. Fall of even-numbered years.
- EDSU 643 Foundation of Educational Supervision** 3 cr.
Nature and scope of educational supervision including human relations skills, technical skills, social systems as they relate to educational supervision, professional organizations, literature and ethics. Fall.
- EDSU 648 Supervision of Student Teachers** 3 cr.
Student teaching programs and the relationship of the public schools and colleges.
- EDUC 522 Logo: Educational Programming & Instructional Techniques** 3 cr.
Learn about Logo as a language for learning about computers, computer programming, and thinking, and as a philosophy of education. Emphasis will be on learner-controlled and learner-directed explorations of intellectual problems of interest.
- EDUC 523 AIDS: Information, Instruction and Counseling** 3 cr.
Designed to facilitate learning current information about HIV and AIDS; prepare individuals to teach and/or give others correct information; and provide basic training for those interested in becoming peer counselors for persons with, or exposed to, HIV/AIDS. Fall, summer.
- EDUC 530 Technology Specialist in Education** 3 cr.
Technology specialist in the school/school district. Includes practical issues for managing the technology infrastructure; managing and strategies for using local area network systems for classroom use; models for delivering staff development; process of school improvement; role in communication with public in building support for technology; issues facing technology leaders; emerging technologies.
- EDUC 541 Classroom Management Strategies** 3 cr.
A study of the elements of developmentally appropriate classroom management including cultural variables, skills of effective teaching, major theorists' view of school management, character and values education, and the impact of school climate and organization. In addition, specific techniques for managing special problems and disruptive youth will be studied.
- EDUC 544 Cooperative Learning Workshop: Level I** 3 cr.
A study of cooperative learning through an analysis of the underlying theory and observation, planning, and implementation of cooperative learning activities. Summer.
- EDUC 545 Middle School Curriculum & Methods** 3 cr.
The middle school movement; the middle school student and curriculum; teaching in the middle school; middle school organization. Every semester. *Prerequisite: Phase II admission or permission of Department Chair.*
- EDUC 546 Using Databases for Critical Thinking** 1 cr.
Use databases in learning to organize, access, manipulate, and evaluate information. Learn to find and interpret information, find patterns, and make inferences based on established patterns. Develop techniques for using databases in elementary and secondary curricula.
- EDUC 547 Making Quality Instructional Materials** 1 cr.
Learn to develop instructional activities based on a specific theme. Learn to use the computer to create instructional materials for these activities.
- EDUC 548 Using Spreadsheets in Mathematics Education** 1 cr.
Use spreadsheets to learn to explore relationships, predict outcomes, analyze information, and draw conclusions. Learn to experiment and to explore concepts without having to perform tedious calculations. Develop techniques for using spreadsheets in elementary and secondary curricula.
- EDUC 550 Art Education Methods for the Secondary Teacher** 2 cr.
Curriculum, goals, content, and organization of secondary art education. Theories of visual development and artistic development in behavior age-appropriate students; materials, resources, and processes for teaching art; classroom management, and technology applications. One hr. lecture, 2 hr. lab. *Prerequisite: admission to MAT-Secondary program or permission of the Department Chair.*
- EDUC 551 Art Education Methods for the Elementary Teacher** 2 cr.
Curriculum, goals, content, and organization of secondary art education. Theories of visual development and artistic development in behavior age-appropriate students; materials, resources, and processes for teaching art; classroom management, and technology applications. One hr. lecture, 2 hr. lab. *Prerequisite: admission to MAT-Secondary program or permission of the Department Chair.*
- EDUC 564 Induction into the Classroom** 1 cr.
An introduction to schools, their structure and climate, research on school effectiveness, the legal issues, and school professional ethics. Specific PDS school policies regarding student behavior and the school system conceptualization of the school improvement process. The course will also require the completion of computer competencies: E-mail, word-processing, web research, presentation skills and sophistication in integration of curricular software. Offered in the spring. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*
- EDUC 590 Special Topics in Education** 1/2 to 6 cr.
Special workshop on a current topic, as arranged.
- EDUC 599 Individual Problems in Education** 1 to 3 cr.
Independent study under supervision. Research paper on a special topic. Requires proposal approval by the Chair of the Department of Educational Professions prior to registering. Repeatable to 6 credits. Every semester, summer.
- EDUC 601 Current Trends in Curriculum** 3 cr.
Historical survey of the development of the curriculum and the influences upon its development. Trends and their causes including the identification, analysis, and appraisal of current trends.

- EDUC 602 History of Education** 3 cr. Significant historical periods in education in the context of social, political, and economic history, with emphasis on contemporary developments.
- EDUC 603 Principles and Practices of Research** 3 cr. Definitions of research; the research process; chronological development of educational research; library use and research literature; the research abstract; historical, descriptive, and experimental types of research. Identification of researchable problems and the formulation of research designs; descriptive and inferential statistical techniques; style for writing the research report. Every semester, summer.
- EDUC 606 Developmental Theory and Experiential Growth** 3 cr. Understanding the concept of self, logical decision making, communication theory, effects of the various social-cultural factors on learners; effects of the individual, the group, and the system on the learning process; leadership theory and skills; studies in human growth and development. Every semester, summer.
- EDUC 607 Comparative Education** 3 cr. Educational systems in the major and developing countries in relation to the American systems. Programs of various organizations that work for international understanding.
- EDUC 613 Classroom Assessment** 3 cr. This course is intended to assist students in the attainment of a theoretical understanding and knowledge related to the design, implementation, and use of various assessment instruments that include, but are not limited to, formal and informal observation, paper-and-pencil instruments, oral questioning, student records, authentic performance tasks, and student portfolios, as well as the qualitative analysis of pupil performance - product and process.
- EDUC 624 Teaching in the Distance Learning Classroom** 1 cr. A study of the development and practice of teaching via an interactive network. The course includes an overview of the development of "distance" education, an introduction to using the associated technology, an analysis of appropriate delivery strategies and techniques, and an opportunity for hands-on practice teaching content area lessons.
- EDUC 625 Philosophy of Education** 3 cr. Philosophies of education. The individual educator's rationale for designing curricula and developing ways of working with students.
- EDUC 626 Technology Applications in Early Childhood Educ.** 1 cr. Explore the use of various technologies and software in the early childhood classroom. Activities will include the use of multimedia, discovery learning, writing tools, and tools to encourage creativity in young children. Research, exploration, and project oriented.
- EDUC 627 Human Relations in Education** 3 cr. Helping relationships, human behavior in groups and organizations, multicultural issues and applications, interpersonal teaching skills, applications of human relations principles.
- EDUC 629 Elements of Statistics** 3 cr. The elements of descriptive statistics and their application to educational measurement.
- EDUC 630 Tests and Measurements** 3 cr. Standardized and teacher-made testing and measurement. Standardized testing concepts. How to scientifically develop, revise, administer, and interpret teacher-made tests.
- EDUC 631 Mental Hygiene for Teachers** 3 cr. Problems of personal and social maladjustment and their impact on teaching.
- EDUC 632 Use of Telecurricular Instruction** 3 cr. Use of telecurricular instruction to create a bond between classroom instruction, curriculum, and technology. Overview of impact of telecurricular instruction on teaching and learning. Strategies and techniques in designing and managing telecurricular projects with K-12 students. *Prerequisites: EDUC 633 or concurrent enrollment in EDUC 633.*
- EDUC 633 Multimedia Design and Publication for Instruction** 3 cr. An introduction to multimedia tools, design, development, publication, and evaluation. Work with text, graphics, video, and sound to create instructional activities which incorporate various approaches to teaching and emphasize K-16 student learning. Plan for integration of multimedia in the curriculum.
- EDUC 634 Telecommunications for Educators** 1 cr. Introductory course to familiarize educators with telecommunications in a "hands-on" environment. This course is intended to provide the opportunity for educators to become proficient in the use of telecommunications activities in the classroom.
- EDUC 635 Evaluation & Integration of Technology in Instruction** 3 cr. Develop competencies in evaluation and selection of technology resources for instruction. Study the nature of curriculum development and examine strategies for integrating technology into K-16 curriculum with an emphasis on performance-based teaching and learning to enhance student achievement. Explore assessment tools to monitor student progress toward performance indicators. *Prerequisites: EDUC 633 or the ability to create and post simple web pages.*
- EDUC 640 Curriculum Development** 3 cr. The nature of curriculum development: basic determinants, valid objectives, designing learning experiences, processes of curriculum organizations, systems of curriculum evaluation, and the procedures for curriculum improvement/change. Fall, Spring, Summer.
- EDUC 645 Advanced Instructional Design** 3 cr. Advanced seminar dealing with the application of Instructional Systems Design principles for multimedia educational systems. Explore various theories of learning and information presentation as they apply to multimedia technologies and delivery systems. Design and develop performance-based units and assessments using advanced technology tools techniques. *Prerequisites: EDUC 633, EDUC 635, and CUIIN 639 or knowledge of instructional systems design principles.*
- EDUC 647 Advanced Educational Psychology** 3 cr. Principles of effective human learning. Major learning theories and their significance for classroom procedures and for general education theory.
- EDUC 655 Design and Administration of Instructional Games** 3 cr. Theory, design, and administration of reality and simulation games for classroom use. Practice in designing a variety of games suitable for instruction in content areas. *Prerequisites: EDUC 201 and 202 or permission of instructor.*
- EDUC 656 Diagnosis in Arithmetic** 3 cr. Diagnosis of student competencies, skills, errors; treatment plans; evaluation materials; teaching tips. *Prerequisites: ELED 471 or SCED 315 or permission of instructor.*
- EDUC 658 Mathematics Workshop for Teachers** 3 cr. Construction of mathematical activities tailored to individual teacher needs. Novel methods, Ample materials developed for future classroom use. *Prerequisite: mathematics methods course for early childhood, elementary, or secondary level, or permission of instructor.*
- EDUC 661 Mathematics: Curriculum, Instruction and Assessment** 3 cr. Current theory and practice for mathematics instruction in elementary education. Review of the research on children's developing conceptions and misconceptions about mathematics, children's problems in achieving literacy in another symbol system, children's error patterns, and principles of learning in elementary mathematics. Study of Maryland Outcomes and National Standards for Mathematics. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

EDUC 662 Science and Health: Curriculum, Instruction, and Assessment**3 cr.**

Research and best practices for health and science instruction in the elementary school. National Science Standards, Health Education Standards, and Maryland Outcomes are addressed. An overview of health education and health issues for elementary children. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

EDUC 663 Management and the Learning Environment**2 cr.**

Analysis and management of students in the classroom based on research. Organizational practices to create a positive classroom climate through pro-active management of the classroom and social skills development of the students. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

EDUC 664 Diversity in the Classroom**3 cr.**

Study of teachers' responsibilities in providing an appropriate program for diverse children including children with special needs. The development and implementation of instructional strategies and materials and appreciation of diverse populations based on research and best practices. School visitations required. Offered during Intersession. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

EDUC 665 The Arts: Contrasts and Connections**3 cr.**

Examination of elements, forms, and concepts in art and music. Interdisciplinary, team-taught approach to arts appreciation, criticism, and creation utilizing a variety of cultural resources. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

EDUC 666 Social Studies: Curriculum, Instruction and Assessment**2 cr.**

Addresses current theory and practice for social studies instruction in elementary education. Covers appropriate content and strategies for instruction as well as Maryland Outcomes and National Standards for Social Studies. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

EDUC 680 Travel Study Tour of Maryland**3 cr.**

A seven day travel study tour of environmental, economic, and historical resources in western, central, and southern Maryland. Completion of a curriculum project. Sites studied include industrial facilities (Westvaco to Calvert Cliffs Nuclear Power Plant), environmental and recreational areas (Swallow Falls to Inner Harbor), and places of historical significance (Garrett County Museum to St. Mary's City). Additional costs include meals and shared automobile expenses. Accommodations are provided.

EDUC 690 Current Concepts in Education**1/2-6 cr.**

Analysis and discussion of current critical issues confronting education.

EDUC 691 Seminar in Education**3 cr.**

Discussion of assigned research. Formal research paper required. *Prerequisite: Admission to degree status and permission of instructor.*

EDUC 695 Pre-Practicum**3 cr.**

Analysis of the field-based group and individual experiences of the MAT student. Components of curricular planning including Dimensions of Learning and Maryland Outcomes in the subject field are emphasized. Continuous reflection and validation of performance based on research and best practices. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

EDUC 696 Practicum Part I**3 cr.**

Intensive experience in the professional development school for the initial certification student. Experience centers on the knowledge, skills, and dispositions of a quality teacher with emphasis on collection of data and assessment of learning to drive instruction. Cohort group remains as a critical element of the student's experience along with substantial time with a mentoring teacher. Peer coaching and collaborative efforts emphasized. Involvement with the school improvement process and study of school reform. Emphasis given to student's Professional Portfolio prior

to the final assessment is part of the practicum experience. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

EDUC 697 Practicum Part II**3 cr.**

Intensive experience in the professional development school for the initial certification student. Knowledge, skills, and dispositions of a quality teacher with emphasis on collection of data and assessment of learning to drive instruction. Cohort group remains a critical element of the student's experience, but this semester along with substantial time with a mentoring teacher. Peer coaching and collaborative efforts emphasized. School improvement process and study of school reform. Attention given to the student's Professional Portfolio and to the student's final assessment Course is a continuation of the Spring Semester practicum experience designed to extend time in the Professional Development School and to provide students with the experiences of ending a school year. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

EDUC 700 Master's Research Paper or Project**variable with a minimum 3 cr.**

Individual investigation or project related to the area of concentration and professional education. Enroll in final credit(s) of Master's Research Paper or Project in the semester in which you expect the paper or project to be approved. Should you not complete the paper or project in the final semester, you will receive a CS grade in this course and will be required to re-enroll in a minimum of one additional credit of Master's Research Paper or Project each fall and spring semester thereafter until the paper or project is completed. Your progress and the decision of the thesis advisor will determine the number of credits for which you must register. Course is graded P/NC.

EDUC 710 Thesis**variable with a minimum 3 cr.**

Intensive investigation of an approved topic in the specialized area within the Master of Education Degree. Proposal required prior to registration. Enroll in final credit(s) of Thesis in the semester in which you expect the thesis to be approved. Should you not complete the thesis in the final semester, you will receive a CS grade in this course and will be required to re-enroll in a minimum of one additional credit of Thesis each fall and spring semester thereafter until the thesis is completed. Your progress and the decision of the thesis advisor will determine the number of credits for which you must register. Course is graded P/NC.

REED 518 – Reading and Writing Connections**3 cr.**

Reading and writing activities in daily instruction. The role and use of authentic assessments in determining student reading performance and selection of materials appropriate to student ability levels. *Prerequisite: admission to the M.A.T. Secondary program.*

REED 525 Creative Teaching of Reading**3 cr.**

Workshop in preparing individual study units for reading skills, K-6, through learning centers, stations, and manipulative materials. *Prerequisite: REED 473 or permission of instructor.*

REED 530 Processes and Acquisition of Language and Reading**3 cr.**

Study of basic linguistic and psycholinguistic insights into language acquisition and the primacy of language development processes in literacy, how the brain responds to language and reading, and the role of experiential background, prior knowledge, phonemic awareness, and personal significance in developing readers. The central concept of literacy will be introduced. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

REED 531 Literacy Instruction**3 cr.**

Definitions of reading and emergent literacy and the research, best practices, and instructional strategies which focus on reading from initial exploration of print through critical processing of literary experiences and content materials. Role of print, word study, text structure, comprehension, and classroom organization in developing a variety of strategies with developing readers. Early identification and intervention strategies for low achieving

readers will also be analyzed. Concept of emerging literacy will be related to other areas of knowledge. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

REED 532 Reading Materials 3 cr.

Research-based principles and precepts to the selection and use of a variety of reading materials. Teachers role for developing the long-term motivational support for developing literacy within a framework of inquiry. Research on motivation and relate it to reading. Variety of texts to be used in classes when reading for literary experience, reading to perform a task, and reading for information and relate them to current research on reading. Strategies for selecting materials, for retrieving materials, and for evaluating materials. Accessibility, variety of media, multicultural materials, text features, and oral and written responses to literature. Research and best practices on the role of parents and community in supporting the reading program. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

REED 533 Reading Assessment 3 cr.

Knowledge of best practices and research using data from state, local, and classroom assessments of reading to make on-going modifications in their PDS classrooms that include strategies for prevention and intervention. Understanding of how to implement a variety of reading assessments and adjust the curriculum. Understanding of the circumstances under which the following types of reading assessments are valuable: teacher observations, running records, learning logs, performance assessment, portfolios, projects, rubrics, and norm-referenced assessments. Knowledge of how to provide meaningful input to Individualized Educational Plan (I.E.P.) teams. Communicate assessment data about individual student reading performance to parents. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*

REED 540 Children's Literature 3 cr.

Content and form of children's literature in books other than school textbooks. How to evaluate literature and use literary materials in teaching.

REED 610 Foundation of Teaching Reading 3 cr.

Methods and materials for teaching reading including the elementary school reading program. The application of research to the teaching of beginning readers, reading as a learning process. This course must be taken first in the reading core sequence. Fall.

REED 617 Teaching Reading in the Content Areas 3 cr.

Methods to develop reading skills as part of the teacher's regular classroom instruction. Problems related to teaching students the skills specifically needed to read subject areas. Spring.

REED 620 Diagnosis and Correction of Reading Difficulties 3 cr.

Investigation of causes of reading disabilities and treating them. Individual and group testing and remedial techniques. Spring. *Prerequisite: REED 610*

REED 635 Middle and Secondary School Reading 3 cr.

For developmental, corrective, or remedial reading teachers in grades 4-12. Emphasis on theory and practice of instruction in the areas of comprehension, vocabulary, and study skills. *Prerequisite: REED 610 or REED 617.*

REED 636 The Psychology of Reading and Reading Difficulties 3 cr.

The reading process, including types of reading difficulties and their causes. Fall. *Prerequisite: REED 610.*

REED 637 Organizing and Administering the Reading Program 3 cr.

Reading program development, including in-service education in reading, evaluation of instructional materials, school and classroom organization for reading instruction, evaluation of the school reading program and working with content teachers. Fall. *Prerequisite: REED 620.*

REED 638 Reading Capstone 3 cr.

Conduct action research in diverse school environments as a means of influencing literacy practices and instruction. Assume coaching role during practicum experiences to support teachers' professional development.

Share field research findings through school and symposium presentations. Offered during both fall and spring semesters. Graded P/NC. *Prerequisite: Completion of program course requirements or permission of instructor. Taken during final semester.*

REED 695 Reading Clinic 3-6 cr.

Combined class lecture and lab experience focusing on diagnosing and tutoring disabled readers. Students required to complete two 3 credit clinics, Part 1 in the Fall semester, Part 2 in the Spring semester. 6 credit hours when clinic is offered in the summer. *Prerequisite: REED 620.*

SCCO 600 Core Counseling Skills 3 cr.

Introduces the broad field of counseling, and specifically, school-oriented counseling in grades K-12. Core elements include: the nature of the helping relationship, introduction to basic counseling skills, and exploring attitudes and beliefs involved in developing and maintaining the helping relationship and how these fundamental core elements apply to the school counselor. Lab experience included which focuses on the counseling relationship and its personal implications. *Prerequisite: admission to the School Counseling Program or permission of the instructor.*

SCCO 601 Program Planning & Service Delivery 3 cr.

The development, organization, and administration of the school counseling program, K-12. Included are the principles upon which the program is built, appropriate procedures for successful program implementation, and professional counselor strategies and behaviors. Not open to students who have received credit for the former GUCO 601. *Prerequisite: admission to the School Counseling Program or permission of the instructor.*

SCCO 602 Applied Readings in School Counseling 3 cr.

Application of current literature to the field of school counseling. Journals, books, and other sources of information such as Internet resources will be examined with the purpose of applying current information to the practical work of the school counselor. Not open to students who have received credit for the former GUCO 602. *Prerequisites: SCCO 600, admission to the School Counseling Program, or permission of the instructor.*

SCCO 606 Social & Cultural Diversity: Issues & Counseling Interventions 3 cr.

Designed to promote understanding of social and cultural diversity relevant to a K-12 educational setting. Examines how one's cultural identity impacts one's beliefs, values and actions in a counseling situation. Provides a framework and skills for competent ethical practice with such issues as gender, race, ethnicity, socioeconomic status, religion, sexual orientation, exceptionalities, family structure and geographic location. Assignments focus on identification and development of one's values, beliefs, cultural identity, and biases and their impact on the counseling process. *Prerequisites: SCCO 600 and admission to the School Counseling Program or permission of the instructor.*

SCCO 608 Lifestyle, Career Development and Decision-Making 3 cr.

Designed to provide prospective counselors with knowledge and skills in helping students develop a realistic career plan through the synthesis of knowledge of self and the world-of-work. Not open to students who have received credit for the former GUCO 608. *Prerequisite: admission to School Counseling Program or permission of instructor.*

SCCO 609 Theories & Techniques in School Counseling 3 cr.

Designed to familiarize school counseling students with the primary theories and techniques which are applicable to the K-12 setting. Emphasis placed on application of the theories to the needs of K-12 school children and their families. Additional focus on development of a personal theoretical approach to counseling children and understanding of how the techniques support the theory. *Prerequisites: Admission to the School Counseling Program or permission of instructor, SCCO 600, SCCO 601.*

SCCO 610 Legal, Ethical & Professional Issues in School Counseling 3 cr.

Designed to present a legal and ethical framework for school counselors. Provides prospective school counselors with a basis for developing their

professional code of ethics within the framework of the standards established by the American Counseling Association. Topics such as relevant court cases, child abuse issues and confidentiality will be explored. Not open to students who have received credit for the former GUCO 610. *Prerequisites:* SCCO 600, 601, 606, 609, 619, admission to School Counseling Program, or permission of the instructor.

SCCO 612 Practicum**3 cr.**

An academic and experiential class designed to provide candidates with in-vivo learning experiences regarding the role of the professional school counselor in the K-12 environment. Supervised experience at one level (elementary, middle or high school) for a total of 100 clock hours. Represents the initial hands-on experience as part of the professional training program for school counseling. Taken in the third semester of course work for full-time students, concurrent with the SCCO 610 Ethics course and prior to the internship semester. *Prerequisite:* Completion of core School Counseling course EXCEPT for SCCO 610 and SCCO 613 (which may be taken concurrently) SCCO 692, SCCO 693 and permission of Program Coordinator. Offered once per year for full-time students.

SCCO 613 Group Dynamics & Interventions in the School Setting**3 cr.**

Provides prospective school counselors with knowledge and skills in the application of group procedures to the school setting K-12, including appropriate techniques in group guidance, group counseling, and school consultation. Not open to students who have received credit for the former GUCO 613. *Prerequisites:* admission to School Counseling Program or permission of the instructor; SCCO 600 and 609.

SCCO 619 Assessment Issues in the School Setting**3 cr.**

Provides prospective school counselors with knowledge and skills related to the philosophy, selection, and implementation of student appraisal techniques including the development, content, and trends in school testing programs. Review of standardized and teacher-made testing and measurement. Interpretation of testing results. Not open to students who have received credit for the former GUCO 619. *Prerequisites:* EDUC 603, admission to the School Counseling Program or permission of the instructor.

SCCO 625 Counselor as a Person**3 cr.**

Exploration of the interface between the person of the counselor and the professional role demands. Focus on elements and issues in the personal and professional arenas of counselor's life as they impact ability to function effectively in the counseling process. Emphasizes self-awareness and maintenance of balance and healthy boundaries as essential components of ethical practice. Not open to students who have received credit for the former EDUC 590 or PSYC 692 special topics Counselor as a Person course. *Prerequisite:* PSYC 510 or 600, or SCCO 600, admission to the School Counseling Program or permission of instructor.

SCCO 633 Advanced Counseling & Consulting Strategies with Specific Populations**3 cr.**

Advanced counseling and consulting strategies appropriate for assisting various types of clientele encountered in a K-12 environment. Topics will vary based on current issues and needs. Not open to students who have received credit for the former GUCO 633. *Prerequisites:* SCCO 600, admission to the School Counseling Program or permission of the instructor.

SCCO 692 School Counseling Seminar**3 cr.**

Through the study of recent professional literature in selected topic areas, students will increase their awareness and knowledge of significant trends in issues in guidance and will become more familiar with the current guidance procedures and techniques. Not open to students who have received credit for the former GUCO 692. *Prerequisite:* admission to the School Counseling Program or permission of the instructor.

SCCO 693 Internship in School Counseling**1-6 cr.**

An academic as well as experiential class in which the student is responsible for providing 500 clock hours of counseling services to young people enrolled in grades K-12. Supervised experience in elementary, junior high (middle) school and secondary school counseling. A total of 6 graduate

credits is required and may be taken over a one or two semester time period. Represents an integration of learned guidance and counseling skills as well as the relation of theory to practice. Taken during the last semester(s) of a student's program of study. Not open to students who have received credit for the former GUCO 693. *Prerequisites:* completion of all core school counseling courses and permission of the program coordinator.

SCED 510 Secondary Methods and Curriculum**3 cr.**

Evolution of the philosophy of secondary education. Current curricula, planning, issues, and instructional methodologies in all secondary teaching areas. *Prerequisite:* admission to the M.A.T. Secondary program.

SCED 511 English in the Secondary School**3 cr.**

Subject methods course required for secondary certification in teaching English. Modern trends in curriculum and instruction. *Prerequisite:* admission to the M.A.T. Secondary program.

SCED 514 Mathematics in the Secondary School**3 cr.**

Subject methods course required for secondary certification in teaching mathematics. Modern trends in curriculum and instruction. *Prerequisite:* admission to the M.A.T. Secondary program.

SCED 515 Methods of Teaching Modern Foreign Languages**3 cr.**

Subject methods course required for secondary certification in teaching foreign language. *Prerequisite:* admission to the M.A.T. Secondary program.

SCED 519 Science in the Secondary School**3 cr.**

Subject methods course required for secondary certification in teaching science. Modern trends in curriculum and instruction. *Prerequisite:* admission to the M.A.T. Secondary program.

SCED 520 Social Studies in the Secondary School**3 cr.**

Subject methods course required for secondary certification in teaching Social Studies. Modern trends in curriculum and instruction. *Prerequisite:* admission to the M.A.T. Secondary program.

SCED 696 Practicum I**3 cr.**

An intensive experience in the secondary school setting for the initial certification student. Experience centers on the knowledge, skills, and dispositions of a quality teacher with emphasis on collection of data and assessment of learning to drive instruction. Peer coaching and collaborative efforts emphasized. Involvement with the school improvement process and school reform. Emphasis given to development of intern's Professional Portfolio. *Prerequisites:* admission to the M.A.T. Secondary program. Completion of SCED 510 and concurrent enrollment in SCED content methods course recommended.

SCED 697 Practicum II with Secondary Seminar**6 cr.**

An intensive experience in the secondary school setting for the initial certification student. Experience centers on the knowledge, skills, and dispositions of a quality teacher with emphasis on collection of data and assessment of learning to drive instruction. Peer coaching, collaborative efforts emphasized under the direction of a mentoring teacher. School improvement process and school reform. Continued development of the intern's Professional Portfolio. Course is a continuation of Practicum I. Seminar is designed to address topics, issues, and concerns as scheduled or needed and to integrate research component and other aspects of the program within the practicum experience. *Prerequisites:* admission to the M.A.T. Secondary program; completion of SCED 696.

SPED 506 Arithmetic: Learning Disabilities and the Reluctant Learner**3 cr.**

Introduction to learning disabilities and their interference with arithmetic performance in elementary school; teaching the undermotivated learner in mathematics.

SPED 510 Introduction to Special Education**1 cr.**

History of special education in public schools. Study of legislative mandates and educational intervention procedures and resources. Definitions, characteristics, and prevalence of specific disabilities. Observations and field-based study required. *Prerequisite:* Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.

SPED 551 Adapting Instruction in Diverse Classrooms 3 cr.

An understanding of the instructional and social development needs of the disabled and non-disabled students in inclusive classrooms. Special attention to collaboration, technology, legislation, educational programming, instructional strategies, inclusion models, and current research related to the students enrolled in secondary school inclusion programs and K-12 programs. *Prerequisite: admission to the M.A.T. Secondary program.*

SPED 561 Characteristics of Exceptional Children 3 cr.

Etiology, diagnosis, physical, emotional, and social characteristics of exceptional children, including the gifted, retarded, and physically handicapped.

SPED 562 Introduction to the Education of Exceptional Children 3 cr.

Understanding the educational needs of exceptional children; preventive and remedial education.

SPED 563 Teaching Children with Special Needs 3 cr.

Observation, identification, and management of children with mild to moderate learning problems. Telecourse of 16 half-hour sessions with fifteen 2 & 1/2 hr. seminars. *Prerequisite: permission of instructor.*

SPED 581 The Gifted Learner 3 cr.

Study of recent research in characteristics, needs, and problems of gifted learners; model programs; future possibilities. *Prerequisite: Psychology 150 or Education 201 or permission of instructor.*

SPED 582 Curriculum for the Gifted Learner 3 cr.

Theoretical and practical approaches to teaching gifted learners; constructing unique plans for each teacher's needs. For those who deal with gifted learners. *Prerequisite: at least one course in curriculum.*

SPED 601 Assessment, Diagnosis, and Evaluation of Exceptional Children 3 cr.

Basic concepts, ethical concerns, legal issues and typical procedures related to the assessment and monitoring of exceptional individuals. Appropriate application and interpretation of testing results. Appropriate use of widely accepted assessment instruments. Strategies that consider the influence of diversity on the special education process. *Prerequisites: SPED 561 and SPED 562.*

SPED 602 Instructional Content and Practices for Exceptional Children 3 cr.

Instructional strategies and practices to meet the needs of individuals with disabilities including academic, behavioral, medical self-management, communication, vocational/career and general curriculum integrative needs. *Prerequisites include six credit hours of special education course work.*

SPED 603 Planning & Managing the Teaching & Learning Environment for Individuals with Disabilities 3 cr.

Basic classroom management theories, methods and techniques for individuals with exceptional learning needs. Research-based best practices for effective management of teaching and learning. Use of technology in planning and managing the teaching and learning environment. Ten weeks field experience component. *Prerequisites: SPED 601 and SPED 602.*

SPED 604 Managing Student Behavior and Social Interaction Skills 3 cr.

Strategies for promoting learning for students with behavior disorders. Ten weeks field experience component. *Prerequisites: SPED 601 and 602.*

SPED 605 Communication and Collaborative Partnerships in Special Education Programs 3 cr.

Strategies for communication and collaboration in working with individuals with exceptional learning needs, parents, school personnel and community agencies. *Prerequisites: Six hours in special education courses.*

SPED 691 Seminar in Special Education 3 cr.

A case study approach to dealing with issues and problems that individuals with disabilities and those who provide educational services for them encounter during the school experience. Demonstrations of competency in appropriate technology required during the course. A culminating course for majors. *Prerequisites: 18 hours of special education course work.*

English

ENGL 502 Editing and Production 3 cr.

Design, layout, and editing techniques for professional publications. Reinforcement of copy editing and proofreading skills. Spring, even-numbered years. *Prerequisites: ENGL 308, 309, 310, 330 or 338.*

ENGL 507 American Fiction: 1865-1922 3 cr.

American novels and short stories of the period, with special attention to literary history and the development of realism and naturalism. Spring, even-numbered years. *Prerequisite: ENGL 300 or permission of instructor.*

ENGL 508 Modern & Post-Modern American Fiction 3 cr.

American novels and short stories from the 1920s to the present from a variety of cultural and gender perspectives. Spring, odd-numbered years. *Prerequisite: ENGL 300 or permission of instructor.*

ENGL 516 History of the English Language 3 cr.

From the beginnings to contemporary usage; changes in sounds, grammatical and spelling forms, syntax, and vocabulary. Spring only.

ENGL 518 Second Language Acquisition: Theory & Application 3 cr.

Introduction to theories of how people learn second languages, with application to conducting research or to the teaching/tutoring of second/foreign languages (principally English as a second language). Spring of even-numbered years. *Prerequisites: ENGL 306 or 416 or LING 301 or permission of instructor.*

ENGL 526 Modern American Poetry 3 cr.

From its antecedents in Whitman and Dickinson to contemporary poets, with emphasis on Frost and Eliot. Spring of even-numbered years. *Prerequisite: ENGL 300 or permission of instructor.*

ENGL 530 The Composing Processes 3 cr.

A survey of theory and research on the composing process. *Prerequisite: six hrs. of writing courses.*

ENGL 536 Advanced News and Feature Writing 3 cr.

Skills in gathering and writing news. Techniques of New Journalism and writing for magazines. Spring only. *Prerequisite: ENGL 336 or permission of instructor.*

ENGL 540 Literature of the Environment 3 cr.

Critical, multi-cultural and historical study of literature of the environment, emphasizing of the variety of attitudes toward the land in essays and poetry. Fall odd-numbered years.

ENGL 590 Selected Topics in English 3 cr.

A select aspect or body of literature of limited scope and topical interest. Subject varies; see Academic Schedule for specific titles. Offered at variable intervals.

ENGL 599 Independent Study 1-3 cr.

Reading and writing on a specific topic defined by the student in conjunction with a faculty director and the Chair of the Department.

ENGL 650 Literature and the Modern Humanities 6 cr.

Twentieth-century fiction, drama, poetry, and essays with attention to writers' responses to issues of technology, war, racism, sexism, religious belief, and ideology. Developments in critical and aesthetic theory as well as seminal influences. Every third summer. *Prerequisite: admission to the Modern Humanities Program.*

ENGL 651 Research in Literature and Modern Humanities 3 cr.

Research and preparation of a paper on a topic in literature growing out of English 650. Every third intersession. *Prerequisite: successful completion of English 650.*

ENGL 690 Current Concepts in Secondary English 3 cr.

Secondary school English teaching. An exploration of recent issues of content and process. Repeatable with different topics.

ENGL 700 Master's Research Paper/Project in Modern Humanities variable cr.

Independent research paper or project exploring a 20th-century theme. Enroll in final credit(s) of Master's Research Paper/Project in the summer in which you expect the completed paper or project to be approved. For each registration prior to completion, a CS grade will be given and you will be required to re-enroll in a minimum of one additional credit of Master's Research Paper/Project each summer thereafter until the paper or project is completed. Upon completion, the CS grade in the credits contracted for initially will be replaced with a final letter grade (A,B,C, or F), additional credits will be graded P/NC. Summers and Intersessions only.

Foreign Languages and Literature

Special Topics

MDFL 507 Latin American and Spanish Films 3 cr.
A study principally of the most recent films from Latin America and Spain. Taught in English (may not be taken to satisfy the Spanish major). Students who have taken this course may not take SPAN 507 and vice versa. Two hours lecture and two hours lab. Variable.

French

FREN 502 The French Theater 3 cr.
French theater from 17th century to the present. Major schools and playwrights from Corneille to the antitheater of the mid-twentieth century. Alternate springs. *Prerequisite:* FREN 315, or permission of instructor.

FREN 504 French Fiction 3 cr.
Great novels, novellas, and short stories from the 17th century to present. Alternate springs. *Prerequisite:* FREN 315, or permission of instructor.

FREN 590 Special Topics in French Language and Literature 3 cr.
A selected topic such as an author or work, a genre or theme, translation or interpreting. *Prerequisites:* two 300-level French courses and permission of instructor.

Spanish

SPAN 501 Spanish Poetry and Drama I 3 cr.
Drama and poetry from the Middle Ages through the Golden Age. *Prerequisite:* SPAN 315 or equivalent.

SPAN 502 Spanish Fiction 3 cr.
Novels and short stories from Cervantes to the present. *Prerequisite:* SPAN 315 or equivalent.

SPAN 503 Spanish Poetry and Drama II 3 cr.
Drama and poetry from the Romantics to the present. *Prerequisite:* SPAN 315 or equivalent.

SPAN 504 Spanish Nonfiction Prose 3 cr.
The essay as Literature. Principal Spanish and Latin American essayists. *Prerequisite:* SPAN 315 or equivalent.

SPAN 590 Special Topics in Hispanic Language and Literature 3 cr.
A selected topic such as an author or work, a genre or theme, translation or interpreting. *Prerequisites:* two 300-level Spanish courses and permission of instructor.

SPAN 599 Individual Problems in the Spanish Language 1-4 cr
Individual research or activity requiring submission of a final paper or completed project. *Prerequisites:* three 300-level Spanish courses and permission of instructor.

Geography

GEOG 501 Geography of Europe 3 cr.
Physical, historical, and cultural features that have shaped the current landscapes of Europe. *Prerequisites:* GEOG 103 (or 113) and GEOG 104 (or 114) or permission of instructor.

GEOG 502 Geography of Russia and the Former Republics 3 cr.
Population, agriculture, mining, manufacturing, trade, and transportation of Russia and adjacent states. Human adjustment to the physical environment of the various regions. *Prerequisites:* GEOG 103 (or 113) and 104 (or 114) or permission of instructor.

GEOG 503 The Geography of Sub-Sahara Africa 3 cr.
The cultural, economic, physical and political potentials of Sub-Sahara Africa. The complex spatial patterns that define the Sub-Sahara African landscape are examined. *Prerequisite:* GEOG 104 (or 114) or permission of instructor.

GEOG 506 Conservation of Natural Resources 3 cr.
Current problems associated with the use and misuse of natural resources. *Prerequisites:* GEOG 103 (or 113) and 104 (or 114) and/or permission of instructor.

GEOG 507 Political Geography 3 cr.
The world patterns of nations; geographic factors affecting the background and present development of countries. *Prerequisite:* GEOG 104 (or 114) or permission of instructor.

GEOG 510 Locational Analysis 3 cr.
Theories and methods of analyzing and explaining the spatial location of economic activities. Emphasis is on theoretical, methodological and practical issues. The relationship between consumer behavior and the location of industrial service facilities is examined. *Prerequisite:* GEOG 104 (or 114) or permission of instructor.

GEOG 512 Geographic Visualization 3 cr.
Explores cartographic applications of computer animation, multimedia presentations and interface design for research, data exploration and visual communication of geo-spatial ideas. Spring, even-numbered years. *Prerequisites:* GEOG 275 and 310, or permission of instructor.

GEOG 513 Remote Sensing-Aerial Photo Interpretation 3 cr.
Remote sensing principles; fundamentals of aerial photographs and images (multispectral, thermal and radar), photo measurements, principles of image identification and photo interpretation, introductory digital image processing and analysis of earth's surface features. Exposure to digital image processing software techniques. Two hrs. lecture and 2 hrs. lab. Fall. *Prerequisite:* GEOG 275 or permission of instructor.

GEOG 514 Digital Image Processing and Analysis 3 cr.
Digital image processing and analysis related to environmental and natural resource management. Satellite data acquisition, data formats and packaging techniques, image processing and analytical techniques, image classification and interpretation, integration of digital image processing applications and modeling with GIS. Two hrs. lecture and 2 hrs lab. Spring. *Prerequisite:* GEOG 380 (GEOG 380 may be taken concurrently), and GEOG 413, or permission of instructor.

GEOG 517 Advanced Geographic Information Systems 3 cr.
Further exploration of GIS theory and formulation of real world applications of GIS to perform spatial analysis and modeling. Includes modeling languages and techniques, and incorporation of remote sensing data. Two hours lecture and two hours computer lab exercises. *Prerequisites:* GEOG 317 (Geographic Information Systems), or permission of instructor.

GEOG 518 Cartometrics 3 cr.
Examines the map's role as a tool for measuring geo-referenced data including spatial transformations, interpolation and generalization. Computer based projects, selected readings and group discussions. Spring, odd-numbered years. Two hrs. lecture and 2 hrs. lab. *Prerequisites:* GEOG 310 and GEOG 317.

GEOG 521 Regional Planning 3 cr.
Contemporary topics in regional planning and development. Group and individual projects and research. *Prerequisite:* GEOG 325 or permission of instructor.

GEOG 527 Geography of Language and Religions 3 cr.
Languages and religions examined from a geographic perspective. Emphasis placed on the five geographic themes of culture region, cultural diffusion, cultural integration, cultural landscapes, and cultural ecology. Three hrs. lecture. *Prerequisite:* GEOG 104 (or 114) or permission of instructor.

GEOG 530 Surface Water Hydrology 3 cr.
Physical principles governing occurrence and movement of water, including precipitation, evaporation and transpiration, runoff, infiltration, soil water movement and stream channel morphology. Lab/field experience with stream gauging, infiltration measurement, soil hydraulic conductivity, flow frequency analysis and related phenomena. Human influence on surface water hydrology. Three hrs. lecture and 2 hrs. lab. Spring. *Prerequisite:* GEOG 103 (or 113) or permission of instructor.

GEOG 532 Groundwater Hydrology 3 cr.
Principles governing the physical and chemical nature of water below the earth's surface, including fundamental concepts of groundwater flow, water-rock interaction and groundwater-surface water interactions. Exploration of human influence on the hydrological environment. Fall. *Prerequisite:* GEOG 530 or permission of instructor.

GEOG 545 Biogeography 3 cr.
Patterns of plant and animal distributions in the landscape are stressed and are considered in light of historical, environmental and biotic influences. Historical development of contemporary regional distributions, survey of world biomes and the importance of disturbance and human-induced changes on biotic distributions are considered. *Prerequisites:* GEOG 103 or BIOL 100. BIOL 340 is recommended.

GEOG 550 Urban Planning 3 cr.
City Planning: needs assessment, land use suitability, policy, and design. Participation in limited scope planning projects. *Prerequisite:* GEOG 324 or permission of the instructor.

GEOG 554 Geography of Tourism 3 cr.
A review of geographical distribution of tourism, travel patterns, and tourism impacts on natural environments and local populations. *Prerequisite:* Completion of six credits of geography or senior standing.

GEOG 555 Tourism Planning 3 cr.
Planning activities associated with the development and marketing of tourist activities. Consideration of both business and leisure travel. Group project focus. *Prerequisite:* GEOG 454 or 554.

GEOG 560 Natural Hazards in the Physical Environment 3 cr.
Study of hazards to human society arising from wind, water, and earth, either independently, or from human activities. Perception, prevention and mitigation of hazards; spatial distribution and impact on global population. *Prerequisite:* GEOG 103 and senior standing or permission of instructor.

GEOG 572 Environmental Planning 3 cr.
Principles and methods used in environmental assessments and site analysis. Students will prepare an environmental impact statement, site development plan, and mine reclamation plan. Two hrs. lecture and 2 hrs. lab. Spring.

GEOG 573 Environmental Law 3 cr.
A survey of federal and state environmental laws and regulations. History and role of environmental regulation related to air and water pollution, waste disposal, and resource development. Fall.

GEOG 599 Research in Geography 3 or 6 cr.
Research in field of interest chosen by student and faculty. *Prerequisites:* minimum of 15 hrs. of geography completed, GEOG 380, and permission of the Chair of the Department.

Health & Physical Education

Health

HEED 504 Health Instruction 3 cr.
Basic concepts of health education. Implementing a health education program for grades K-12.

HEED 508 Therapeutic Modalities in Sports Medicine 3 cr.
The study of both the theoretical basis and practical usage of various therapeutic modalities. Designed for individuals who routinely treat sports-related injuries. Fall only. *Prerequisites:* HEED 305 or permission of instructor.

HEED 516 Curriculum Design in Health Education 3 cr.
Health Education curriculum development, implementation, and evaluation; implementation of program strategies from evaluation results. Spring.

HEED 518 Current Issues in Health 3 cr.
Identification and investigation of problems and solutions relevant to existing or emergent health topics. Spring.

Physical Education

PHEC 501 Physiology of Exercise 3 cr.
Exercise and the circulatory, respiratory, and nervous systems; efficiency of muscular work; fatigue; age, gender, and body type. Two hrs. lecture, one 2-hr. lab. *Prerequisite:* BIOL 201 and 202 and PHSC 201 and 202 or equivalent.

PHEC 502 Adapted Physical Activities 4 cr.
Adapting physical activities to individual disabilities. Required prior to student teaching in Teacher Education Program. *Prerequisite:* PHEC 303.

PHEC 505 Psycho-Social Foundations of Sport 3 cr.
Study of human behavior during participation in sport; role of sport in society; psychological characteristics of sport performers; people and organizations who control sport.

PHEC 507 Motor Learning and Performance 3 cr.
Motor skill acquisition as learning. Nature of learner; guidance, results, motivation, practice, transfer, retention.

PHEC 510 Advanced Strength Training 3 cr.
The study of the principles and practices of advanced strength training. Emphasis on the practical application of this knowledge to both athletic performance and a health/wellness setting. Spring only. *Prerequisites:* PHEC 401/501 or permission of instructor.

PHEC 511 Evaluation and Prescription for Fitness 3 cr.
In-depth examination of evaluation of and components applicable to the development of exercise programs. Fall only. *Prerequisites:* PHEC 401/501 or permission of instructor.

- PHEC 512 Principles of Coaching** 3 cr.
Introduction to coaching education and the responsibilities of the coach. Spring semester.
- PHEC 513 Rehabilitation Techniques in Sports Medicine** 3 cr.
Various aspects of the rehabilitation process for the physically active or athletic population. Goals, techniques, evaluation methods and specific rehabilitation programs covered. Spring. *Prerequisite: HEED 318, 319, or permission of instructor.*
- PHEC 520 Sports Law and Ethics** 3 cr.
Legal implications of tort and liability law for coaches; case studies of ethical issues in sport; athletic eligibility and gender equity.
- PHEC 535 Physical Activity and the Older Adult** 3 cr.
The aging process, current theories of aging, and how physical activity, nutrition, and psychological and sociological variable influence the well being of individuals as they biologically age.
- PHEC 580 Field Experience in Health, Physical Education, Sport, and Recreation** .05 to 6 cr.
Special aspects of health, physical education, sport, and recreation. Site of study may vary. Offered as needed.
- PHEC 590 Special Topics in Health, Physical Education, Recreation and Dance** 1/2-6 cr.
Unique or distinctive group study including such activities as clinics, workshops, or course work dealing with current topics related to health, physical education, recreation, and dance. Offered as needed.
- PHEC 598 Readings in H.P.E.R.** 1 to 4 cr.
Intensive readings on a selected topic. Graded or P/N. *Prerequisite: permission of instructor.*
- PHEC 599 Individual Problems in H.P.E.R.** 1 to 4 cr.
Individual activity requiring submission of a final paper or completed project. Graded or P/N. *Prerequisite: permission of instructor.*
- PHEC 602 Current Literature and Research in Health, Physical Education and Recreation** 4 cr.
Directed reading and class discussion based on recent literature in the field. Investigation of testing procedures and experimental methods for conducting research in human performance. Writing for publication.
- PHEC 603 Evaluation and Measurement in Health, Physical Education, and Recreation** 3 cr.
Examination of evaluation instruments, administering, analyzing, and interpreting test results.
- PHEC 604 Human Movement and Physical Activity for the Elementary Classroom** 1 cr.
Research based developmentally appropriate content, skills, and activities in physical education. Primary emphasis on regular classroom teacher role. Lecture and Lab. Spring. *Prerequisite: Admission into the Master of Arts in Teaching program or permission of the Program Coordinator.*
- PHEC 609 The Psychology of Human Performance** 3 cr.
Consideration of factors affecting performance: Motivation, aspiration incentives and arousal, discrimination and perception, learning and retention, personality and social correlates of performance.
- PHEC 630 Advanced Physiology of Exercise** 3 cr.
In-depth study of both acute responses and chronic adaptations to exercise, with particular emphasis on circulatory, respiratory, and musculo-skeletal functions.
- PHEC 634 Graded Exercise Testing & Electrocardiogram Assessment** 3 cr.
Training in protocols and procedures for administering progressively strenuous exercise tests and instruction in the evaluation of data regarding cardiac function during such testing.
- PHEC 636 Using Technology in the Study of Human Performance** 3 cr.
Practical applications of the micro-computer to the health fitness/wellness domain with special attention on the specific programs which are available in diagnosis, evaluation, and exercise prescription for adults.
- PHEC 638 Nutrition and Weight Control in Adults** 3 cr.
Study of all aspects of nutrition related to exercise with special emphasis on body weight control programs. Both physiological and psychological mechanisms related to nutrition and weight control will be included.
- PHEC 639 Practicum in Human Performance Programs** 1 to 3 cr.
To provide opportunities for practical experiences within the realm of exercise science by placing individuals in the field for "hands on" skill development in the working environment.
- PHEC 691 Seminar in Health & Physical Education** 1 to 3 cr.
Variable topic seminar.
- PHEC 699 Individual Research in Health & P.E.** 2 to 4 cr.
Study of problem in a selected area. Written and oral reports required. Graded or P/N. *Approval of the Chair of the Department required prior to registration.*
- PHEC 700 Master's Research Paper or Project** variable with a minimum 3 cr.
Individual investigation or project related to the area of concentration and professional education. Enroll in final credit(s) of Master's Research Paper or Project in the semester in which you expect the paper or project to be approved. Should you not complete the paper or project in the final semester, you will receive a CS grade in this course and will be required to re-enroll in a minimum of one additional credit of Master's Research Paper or Project each fall and spring semester thereafter until the paper or project is completed. Your progress and the decision of the thesis advisor will determine the number of credits for which you must register. Course is graded P/NC.
- PHEC 710 Thesis** variable with a minimum 3 cr.
Intensive investigation of an approved topic in the area of Human Performance. Proposal required prior to registration. Enroll in final credit(s) of Thesis in the semester in which you expect the thesis to be approved. Should you not complete the thesis in the final semester, you will receive a CS grade in this course and will be required to re-enroll in a minimum of one additional credit of Thesis each fall and spring semester thereafter until the thesis is completed. Your progress and the decision of the thesis advisor will determine the number of credits for which you must register. Course is graded P/NC.

History

- HIST 503 Imperial Russia** 3 cr.
The political, economic, social and cultural history of the Russian empire, from its roots in the ninth-century Kievan state to its fullest expansion under the last Romanov tsar, Nicholas II.
- HIST 504 Revolutionary and Soviet Russia** 3 cr.
Russia since the revolution of 1905: political developments, both domestic and foreign; economic system and organization; social and cultural evolution.
- HIST 515 History of American Women** 3 cr.
The experience of all groups of women in America from pre-Columbian times to the present. How female roles are shaped by changing socio-economic circumstances.
- HIST 550 The History of Mexico** 3 cr.
The development of Mexican society from the pre-Columbian period to the present. The Aztec and Mayan civilizations, the implanting of Spanish control, the origins of the Mexican Revolution and its long-range impact.
- HIST 552 Traditional Africa** 3 cr.
The African pre-colonial states; their government, economic systems, cultural patterns, achievements, and relations with other African and non-African peoples.
- HIST 553 Contemporary Africa** 3 cr.
The 20th-century emergence of representative African nations; the achievements of these nations; their current political, economic, and social problems.
- HIST 555 Latin American Revolutions** 3 cr.
Twentieth century revolutions in Latin America. Theories of revolution, the causes, leaders and followers, post-revolutionary developments and the international consequences of Latin American revolutions.
- HIST 561 Colonial American, 1607-1763** 3 cr.
From settlement of Jamestown through the French and Indian War: European backgrounds, religious development, regional differences, Indian relations, and cultural life.
- HIST 562 Revolutionary America, 1763-1789** 3 cr.
From the conclusion of the French and Indian War to the formulation of the United States Constitution: British-American imperial relations; cultural developments in the 18th century; origins, impact, and general nature of the American Revolution; and the formation of the Federal Union.
- HIST 563 The Age of Jefferson and Jackson, 1789-1848** 3 cr.
From Washington's presidency through the administration of James K. Polk. The philosophies of Hamilton and Jefferson, the origins of political parties, politics of the Jacksonian era, Indian removal, the development of transportation, the frontier, and emerging sectionalism.
- HIST 564 The Civil War and Reconstruction, 1849-1877** 3 cr.
From the end of the Mexican War through the period of Southern Reconstruction: sectionalism, slavery, abolitionism, and the social, political, military, and economic impact of the War Between the States.
- HIST 565 Gilded Age America, 1877-1913** 3 cr.
From the presidency of Hayes through the Progressive Era; the labor movement, growth of the city, immigration, imperialism, art and architecture, and politics.
- HIST 566 The United States in the 20th Century, 1914-1945** 3 cr.
The home front during World War I, postwar reaction, the 1920s, the Stock Market Crash, the Great Depression, the New Deal, and American society during World War II.
- HIST 567 The United States in the 20th Century, 1945-Present** 3 cr.
The Truman, Eisenhower, and Kennedy years; the Cold War and McCarthyism; the 1920s, black and student movements; Johnson and Vietnam; Nixon and Watergate; and more recent presidencies.
- HIST 575 Genocide and Mass Violence** 3 cr.
Genocides of the modern era from that of Herero of German Southwest Africa (early 20th century) to that of Darfur in the Sudan (early 21st century). Variable.
- HIST 576 Modern Europe** 3 cr.
European history in the modern period, from the Napoleonic era (1799-1815) to the present day, with particular attention to geographic, historical, political and economic distinctions between western and eastern Europe.
- HIST 650 History and the Modern Humanities** 6 cr.
Introduction to the discipline of history and its function among the humanities. Ethical and moral issues involved in selected historical developments of the 20th century. Political, scientific, and social developments crucial to defining and understanding the unique predicament of humanity in the 20th century. Every third summer. *Prerequisite: admission to Modern Humanities Program.*
- HIST 651 Research in History and Modern Humanities** 3 cr.
Research and preparation of a paper on topic in history growing out of History 650. Every third intersession. *Prerequisite: successful completion of History 650.*
- HIST 698 Readings in History** 3 cr.
Independent reading under direction of a history department faculty member.
- HIST 700 Master's Research Paper/Project in Modern Humanities** Var. cr.
Independent research paper or project exploring a 20th-century theme. Enroll in final credit(s) of Master's Research Paper/Project in the summer in which you expect the completed paper or project to be approved. For each registration prior to completion, a CS grade will be given and you will be required to re-enroll in a minimum of one additional credit of Master's Research Paper/Project each summer thereafter until the paper or project is completed. Upon completion, the CS grade in the credits contracted for initially will be replaced with a final letter grade (A,B,C or F), additional credits will be graded P/NC. Summers and intersessions only.

Mathematics

- MATH 515 Foundations of Mathematics** 3 cr.
Theory of sets; mathematical logic; methods of proof in mathematics; the real number system; selected topics. Prerequisite: *MATH 228 or concurrent enrollment in MATH 228.*
- MATH 520 Advanced Calculus** 3 cr.
Limits, continuity, differentiation and integration extended to higher dimensional spaces. Topics from vector analysis and Fourier analysis. Prerequisite: *MATH 320.*
- MATH 525 Introduction to Real Analysis** 3 cr.
Topology of real numbers; sequences, cluster points, continuity, theory of differentiation and integration; elements of measure theory; infinite series. Prerequisite: *MATH 228.*
- MATH 526 Introduction to Complex Analysis** 3 cr.
Analytic functions: Cauchy's Theorem; Taylor and Laurent series; meromorphic functions: residue theory; conformal mapping. Prerequisite: *MATH 228.*
- MATH 532 Differential Equations** 3 cr.
Solution of ordinary differential equations; Laplace transform; numerical methods; solution by series. Fall only. Prerequisite: *MATH 228.*
- MATH 535 Numerical Analysis** 3 cr.
Elements of numerical methods frequently used in applied mathematics and the natural sciences; algorithms suitable for use in computers. Prerequisite: *MATH 228 and COSC 200 or permission of instructor.*
- MATH 537 Combinatorics and Graph Theory** 3 cr.
General enumeration techniques, elements of graph theory, matrix representations of graphs, and applications of graph theory. Variable frequency. See department secretary for up-to-date schedule. Prerequisite: *MATH 228 or permission of instructor.*
- MATH 540 Modern College Geometry** 3 cr.
An introductory synthetic study of geometry; finite, absolute, affine, Euclidean, hyperbolic, elliptic and projective geometries. Prerequisite: *MATH 228.*
- MATH 551 Modern Higher Algebra** 3 cr.
Basic study of the structure of groups and rings: isomorphism theorems; special kinds of rings; additional topics. Prerequisite: *MATH 228.*
- MATH 552 Linear Algebra** 3 cr.
Basic study of vector spaces and their relationships to matrix algebra: the algebra of linear transformations; linear functionals and dual spaces; inner product spaces; and decomposition theorems. Variable frequency. See department secretary for up-to-date schedule. Prerequisite: *MATH 228. MATH 350 strongly recommended.*
- MATH 560 Introductory Topology** 3 cr.
The topology of metric spaces; introduction to general topological spaces; the separation axioms; compactness; connectedness. Prerequisite: *MATH 228.*
- MATH 561 History of Mathematics** 3 cr.
Historical development of mathematics and its concepts. Contributions of individuals and societies to the development of mathematics. Prerequisite: *MATH 228.*
- MATH 565 Theory of Numbers** 3 cr.
Divisibility; Diophantine equations; congruences; sums of squares; additional topics. Variable frequency. See department secretary for up-to-date schedule. Prerequisite: *MATH 228.*
- MATH 570 Mathematical Models and Applications** 3 cr.
Model-building processes, the assumptions underlying mathematical models and the generation and interpretation of results from models. Theory and illustrative applications of modeling. Analyses of models constructed by students. Prerequisite: *MATH 228, or permission of instructor.*
- MATH 575 Theory of Secondary Mathematics Education** 3 cr.
Theoretical aspects of teaching mathematics at the secondary level. Philosophical and psychological principles of learning mathematics and their application.
- MATH 580 Probability and Statistics** 3 cr.
A deeper study of probability and statistics. Continuous probability distributions and their statistical applications. Prerequisites: *MATH 228, MATH 380, or permission of instructor.*
- MATH 581 Applied Regression Analysis** 3 cr.
A matrix approach to linear and multiple regression using SPSS; selecting the best regression equation; model building; and linear model approach to ANOVA and ANCOVA. Prerequisites: *MATH 380 (or MATH 209) and MATH 350 or permission of instructor.*
- MATH 582 Applied Nonparametric Statistics** 3 cr.
Sign tests; tests based on ranking methods, including correlation and regression; nonparametric confidence intervals and point estimates; chi-square tests; and efficiency estimates. Prerequisite: *MATH 209 or MATH 219 or MATH 380.*
- MATH 590 Selected Topics in Mathematics** 3 cr.
A specialized topic or recent development in mathematics. May be taken more than once if the topics are substantially different. Does not duplicate any other course offered by the Department of Mathematics. Prerequisite: *MATH 228 or permission of instructor.*
- MATH 591 Seminar in Mathematics** 3 cr.
Individual reports and group discussions on mathematical topics and applications. Written project required. Prerequisite: *permission of instructor.*
- MATH 592 Internship Seminar** 3 cr.
Academic component of internship. Requires co-registration in 595. Graded A-F.
- MATH 595 Internship in Mathematics** 6 or 12 cr.
Experiential component of internship; guided work experience in conjunction with MATH 592; must directly relate to academic program. Full-time interns register for 12 credits in MATH 595 and 3 credits in MATH 592. Part-time interns register for 6 credits in MATH 595 and 3 credits in MATH 592. Graded P/F. Prerequisites: *good academic standing; submission of the Internship Agreement form to the internship director prior to registering; completion of MATH 226, 227 and 228 and four math courses at 300 or 500 level (or enrollment in the fourth 300 or 500 level mathematics course at time of application); GPA of at least 3.0 in mathematics; and any requirements of the sponsoring agency.*
- MATH 680 Research Statistics** 3 cr.
Applied statistical methods. Experimental design; analysis of variance; multiple regression; and correlation. Prerequisite: *MATH 209 or equivalent.*
- MATH 690 Current Concepts in Mathematics Education** 3 cr.
Secondary school mathematics teaching. Development of units of instruction; methods of informal evaluation; contemporary learning theories; trends in secondary school mathematics curricula; and teaching strategies.
- MATH 698 Reading in Mathematics** 3 cr.
Library research and individual study.
- MATH 699 Individual Research in Mathematics** 3 cr.
Selected advanced topics in mathematics.
- MATH 700 Master's Research Paper or Project** 3 cr.
An individual investigation or project related to the area of concentration and professional education.
- MATH 710 Thesis in Mathematics** 6 cr.
A research project in mathematics. Written report and oral presentation required.

MBA Courses

MBA Essentials:

BUAD 520 Management and Organizational Behavior 1 cr.
Provides the foundation knowledge of management and organizational behavior for non-business students by focusing on four primary management functions and their applications for effectively managing in a dynamic environment. The emphasis is placed on the purpose and process of organizations, managing individuals and groups in organizations, leadership and culture. Offered every semester.

BUAD 521 Marketing 1 cr.
Basic overview of the marketing function carried out in organizations. Course addresses the basic components and discusses how the marketing function is integrated into the successful organization.

BUAD 522 Strategic Planning and Analysis 1 cr.
Explores strategic planning as (1) a way of thinking vital to organizational success in today's dynamic environment, and (2) an iterative ongoing process involving the entire organization. Focus is directed toward the criticality of sustainable competitive advantage to organizational viability through a multi-level perspective.

BUAD 523 Essentials: Business Law 1 cr.
Analysis of the political, regulatory and legal issues affecting managerial work with attention given to minimizing exposure to liability and the relationship of business with society; stakeholder relationships and the social responsibility of business to various constituencies. Includes such topics as torts, contracts, property, ethical and public policy issues affecting business and the managerial approaches for dealing with these issues.

BUAD 524 Business Ethics and Social Responsibility 1 cr.
Business Ethics; the relationship of business with society; stakeholder relationships and the social responsibility of business to various constituencies; social, ethical and public policy issues affecting business and the managerial approaches for dealing with these issues.

BUAD 525 Statistics for Business 1 cr.
Introduction to quantitative issues relevant to business. Topics covered include basic statistics, hypothesis testing, and multivariate analysis as well as forecasting.

BUAD 526 Process and Production Management 1 cr.
Broad introduction to operations management; productivity, operations in a global environment, project management, managing quality and supply-chain management using a range of analytical tools and techniques.

BUAD 527 Financial Accounting 1 cr.
An overview of financial accounting. Beginning with the accounting cycle through the preparation of financial statements using Generally Accepted Accounting Principles, the language of business is introduced.

BUAD 528 Managerial Accounting 1 cr.
Introduction to managerial accounting concepts. Focus on organizational decision making and control. An overview of cost behaviors, budgeting, variances, and present value analysis.

BUAD 529 Corporate Finance 1 cr.
Introduction of corporate finance concepts to equip the student with skills necessary for undertaking more rigorous financial management issues in FINA 610. Coverage in financial decision making includes the working of money and capital markets, time value of money, free cash flow and risk/return valuation analysis.

Required MBA Courses:

ACCT 540 Financial Accounting 3 cr.
Overview of financial accounting, financial statements and financial reporting issues. Importance of accounting as the language of business.

Construction of financial statements and cash budgets. Evaluation of financial condition through ratio and trend analysis. Ethical issues. Other financial topics. *Prerequisite: BUAD 527.*

ACCT 546 Managerial Accounting 3 cr.
Overview of management accounting and its use in managerial decision making. Behavior of costs and their impact on organizational planning and control. Responsibility accounting and budgeting. Capital budgeting and present value analysis. Other managerial topics. *Prerequisites: ACCT 540, BUAD 528.*

BMIS 607 Information Management in Organizations 3 cr.
Employs information technology (IT) to support organizational decision-making through data collection, integration and conveyance. Explores how the process is influenced by factors both internal and external to the organization. Examines challenges to information system efficacy, assessment of structural and process sufficiency and conduct of cost/benefit assessment of existing systems, as well as of prospective improvements.

ECON 511 Economics for Managers 3 cr.
Explores fundamental economic concepts and their relevance to organizational performance, and addresses the linkage between economic variables and normal and organizational decisions. Examines economic decisions by the firm made within the global environment. Students apply tools for both microeconomic and macroeconomic analysis.

FINA 610 Financial Management 3 cr.
Uses analytical tools and concepts utilized by managers to make the financial decisions consistent with the goals of the firm through the application of selected cases, research project and problems. Topics such as Working Capital Management, Cost of Capital, Capital Structure, Capital Budgeting, Lease Analysis and Risk Analysis will be addressed. *Prerequisites: ACCT 540, BUAD 529.*

MGMT 510 The Leadership Process 3 cr.
Utilizes self-awareness as a framework for individual development; examines personality and behavioral differences. The course also analyzes the application of leadership skills needed for organizational effectiveness in a global world of continuous change.

MGMT 512 Management Decision Analysis 3 cr.
Overview of management decision science. Utilizes various analytic tools and statistical techniques. Topics include data analysis, spreadsheets and statistical programs, decision theory, optimization, forecasting, regression analysis, hypothesis testing, problem solving and decision making. *Prerequisite: BUAD 525.*

MGMT 542 Organizational Behavior 3 cr.
Examines management of individual behavior and groups/teams as related to performance management, motivation, leadership, power and influence, group dynamics, teamwork and organizational structure and change for adaptation in unpredictable and ambiguous situations. Topics also include goal setting, employee socialization, training, delegation, coaching/mentoring and performance models and tools. *Prerequisite: undergraduate business background or BUAD 520.*

MGMT 620 Strategic Human Resource Management 3 cr.
Integrates the macro and micro perspectives of Human Resource Management; examines the vital role of acquiring and retaining individuals with the skills, knowledge and abilities needed to accomplish the tasks necessary for achievement of organizational strategic goals. The course also discusses the ethical issues associated with HR responsibilities, and emphasizes motivating individuals to exhibit the behaviors (performance) essential to overall organizational success in the global environment. *Prerequisite: BUAD 520.*

MGMT 680 Strategic Integration 3 cr.
The development of a useable, integrated, comprehensive analysis process and model applicable to a broad range of management contexts and situations through the in-depth oral and written analysis of one complex, multiple strategic issue case that requires, for assurance of learning purposes,

the use and integration of knowledge, techniques, skills and dispositions developed in the prerequisite course. *This course and/or MGMT 690 must be taken in the student's last semester in the program. If a student is taking only MGMT 680 in the student's last semester, then MGMT 690 must be taken in the preceding semester.*

MGMT 690 Strategic Change Management 3 cr.
Techniques for strategic change will be examined and practiced concurrently with the student's development of an organization-based change proposal. This experience will culminate in a rigorous integration of the analysis, diagnosis and presentation stages of a planned, systemic change *proposal* to a client. Candidates for the MBA are evaluated by the faculty during this semester to ensure that communication, presentation and analysis skills in the behavioral sciences are likely to lead to team participation and/or managerial successes. *This course and/or MGMT 680 must be taken in the student's last semester in the program. If a student is taking only MGMT 690 in the student's last semester, then MGMT 680 must be taken in the preceding semester.*

MGMT 691 Seminar in Management 3 cr.
Specific management topic not covered in the regular curriculum. Offered in response to petition of seven or more students. Does not apply to MBA requirements.

MGMT 699 Individual Research in Management 3 cr.
Directed study for topics and issues not covered in the regular curriculum. Does not apply to MBA requirements. Open to undergraduates. *Prerequisites: Approval of department chair and submission of independent study request.*

MKTG 640 Marketing Management 3 cr.
Development of issues relative to (1) customer/client wants and needs; (2) product and/or service design; and (3) communication of information about the product or service to customers/clients. *Prerequisite: BUAD 521.*

Music

MUSC 590 Special Topics in Music Education .5- 6 cr.
A selected aspect of music education. Subject varies; see Academic Schedule for specific titles. *Prerequisite: permission of the instructor.*

MUSC 599 Individual Research in Music 1-6 cr.
Intensive individual study in an area of special interest under the direction of a staff member. Fall only. *Prerequisite: permission of the Chair of the Department.*

Philosophy

PHIL 650 Philosophy and the Modern Humanities 6 cr.
In light of the technological changes affecting rights and obligations in interpersonal relationships, in the professions, and in specific political and economic structures, special attention is given to moral responsibility as a particular concern of twentieth century philosophy. Topics include equality as an issue of social justice, the effect of technology upon moral dilemmas (especially upon biomedical ethics and human behavior in war), and political/ideological influences upon ethical judgment. Every third summer. *Prerequisite: admission to Modern Humanities Program.*

PHIL 651 Research in Philosophy and Modern Humanities 3 cr.
Research and preparation of a paper on a topic in Philosophy growing out of Philosophy 650. Every third intersession. *Prerequisite: successful completion of Philosophy 650.*

PHIL 700 Master's Research Paper/Project in Modern Humanities

var. cr.

Independent research paper/project exploring a 20th-century theme. Enroll in final credit(s) of Master's Research Paper/Project in the summer in which you expect the completed paper or project to be approved. For each registration prior to completion, a CS grade will be given and you will be required to re-enroll in a minimum of one additional credit of Master's Research Paper/Project each summer thereafter until the paper or project is completed. Upon completion, the CS grade in the credits contracted for initially will be replaced with a final letter grade (A,B,C, or F), additional credits will be graded P/NC. Summers and intersessions only.

Physics

PHYS 590 Special Topics 1-4 cr.
Designed for in-service physics/science middle and high school teachers. Active physics learning, research-based workshops to enhance content, constructivist learning and teaching, use of technology, demonstrations and assessment. Summer only.

Political Science

POSC 522 American Constitutional Law I 3 cr.
A study of the Constitution of the United States as defined in the principal decisions and opinions of the courts, with emphasis on the relationship between the federal government and the state governments and among the three branches of the federal government.

POSC 523 American Constitutional Law II 3 cr.
A study of the Constitution of the United States as defined in the principal decisions and opinions of the courts, with emphasis on the relationship of the individual to the federal and state governments.

POSC 527 The American Presidency 3 cr.
An analysis of the modern American presidency. It emphasizes the president's interaction with the bureaucracy and Congress in the making of American public policy, both domestic and foreign. Topics include the evolution of the president's role in the American political system, the nature of presidential power, and the impact of the president's personality and the growth of the White House staff on executive leadership and decision-making.

POSC 571 American Political Thought 3 cr.
Analytical study of the evolution of political ideas and institutions in the United States from the colonial period to the mid-twentieth century. Topics include our Puritan and Enlightenment heritage, the impact of political reform movements, and themes in American policy.

POSC 591 Seminar in Political Science 3 cr.
Lectures, discussions, student reports, research techniques, criticism, interpretation. Individual research (senior thesis) on a common topic, with interim reports and final formal presentation of a paper. *Prerequisite: written permission of instructor.*

POSC 598 Readings in Political Science 1 to 6 cr.
Individual advanced readings on a special interest. Regular conference with instructor. Repeatable to 6 credits. Every semester. *Prerequisites: two of the following: POSC 110, 211, 321; plus written permission of instructor.*

POSC 698 Readings in Political Science 3 cr.
Advanced readings and independent study in a topic of advanced special interest. *Prerequisite: permission of instructor, graduate standing.*

Psychology

Graduate students in the M.S. Counseling Psychology program will be given priority enrolling in all graduate level psychology courses. If you have not been admitted to the M.S. Counseling Psychology program, then you will need to be granted permission by the instructor in order to take any of the courses listed as graduate level courses.

PSYC 504 Psychology of the Exceptional Child 3 cr.
Developmental and behavioral characteristics of exceptional children as they relate to inclusion, classroom management, federal laws and psychological treatment. Topics on exceptional children include: mental retardation, physical disabilities, giftedness, emotional problems and autism. *Prerequisites: PSYC 210 or 212, or permission of instructor.*

PSYC 508 Tests and Measurements 3 cr.
Psychological and educational tests, their validity, reliability, scale transformation, norms, and standardization. Administration, uses and interpretation of various instruments of assessment. *Prerequisites: PSYC 150/151 and 3 additional credits in Psychology or permission of instructor.*

PSYC 510 Introduction to Counseling 3 cr.
Practical and theoretical foundation for further study. The nature of helping relationships, conditions for counseling, stages in the counseling process, and the counselor as a professional helper. Role playing, audio and video tape experiences, and related skill-development exercises. *Prerequisites: PSYC 150/151 and 3 additional credits in Psychology or permission of instructor.*

PSYC 514 Theories of Personality 3 cr.
General survey of the principal theories and research concerning the nature and development of personality. Variable. *Prerequisites: PSYC 150/151; PSYC 210 or 212; or permission of instructor.*

PSYC 520 Physiological Psychology 3 cr.
Characteristics of the nervous and endocrine system and their relationship to human behavior. Variable. *Prerequisites: PSYC 150/151 and 3 additional credits in Psychology or permission of instructor.*

PSYC 530 Health Psychology 3 cr.
Psychological principles applied to the promotion and maintenance of health, the prevention and treatment of illness and changing public opinion about health related matters. Behavioral components of health risk factors and improvement of the health care system are addressed. Variable. *Prerequisites: PSYC 150/151 and 3 additional credits in Psychology or permission of instructor.*

PSYC 540 Survey of Family Psychology & Intervention Issues 3 cr.
General survey of the principal theories and research about family interaction patterns and interventions with families. Areas discussed include systems approaches, family life cycle development, social forces affecting families and mental health issues including substance abuse/dependency. *Not intended to prepare students to provide family therapy. Does not meet program requirements for M.S. Counseling Psychology students. Prerequisites: one developmental course and graduate standing.*

PSYC 544 The Male Experience 3 cr.
Examination from a gender-sensitive perspective of factors affecting the development of male behavior in American society. Emphasis on the contributions of psychology to understanding gender-related developments; contributions of other social sciences and biology are also incorporated. Topics include work, sports, male-female relations, friendship, minority experience, sexuality, power. Three hours lecture, discussion. Variable. *Prerequisites: PSYC 150/151 and 3 additional credits in Psychology or permission of instructor.*

PSYC 550 Multicultural Counseling Issues 3 cr.
Introduction to the issues of gender, class, race, culture, sexual orientation, and physical ability, as these variables may influence their ability to be present and counsel individuals who are different from themselves.

Students will examine between and within group differences in light of various social, cultural, historical, and political contexts. The goals of this course are to increase student awareness of self and others as cultural beings and gain knowledge about various cultural groups in the United States. *Prerequisite: PSYC 150.*

PSYC 570 Research Methods Applications 4 cr.
Application of univariate and multivariate research methods and statistical procedures to analyze data from research projects in psychology and related fields. Instruction in computer data analysis and professional presentation to prepare students for work and graduate study. Lab required. Fall. *Prerequisites: PSYC 300, PSYC 301, or permission of the instructor.*

PSYC 581 History and Systems 3 cr.
Historical foundations of the discipline of psychology. Survey of recent and current systems of theoretical ideas in psychology. Attention to the roots of the discipline in philosophy and science; consideration of the work of great psychologists and associated systems. Variable. *Prerequisites: PSYC 150/151 and 3 additional credits in Psychology or permission of the instructor.*

PSYC 585 Behavioral Approaches to Human Problems 3 cr.
Therapeutic application of learning principles to problems in the behavior of children and adults; normal childhood development; education and habit disorders; depression, severely disordered behavior, anxiety; and sexual problems in adults. Behavioral assessment, behavior change programs, and evaluation of such programs. Individual research and project required. Variable. *Prerequisites: PSYC 150/151 and 3 additional credits in Psychology or permission of the instructor.*

PSYC 590 Special Topics in Psychology 1-4 cr.
Either a practicum to develop psychological skills or a content-oriented course to provide a critical appraisal of a selected topic, as announced. Does not duplicate any other course offered by the Department of Psychology. Four credits when 5 contact hrs. are required (such as 2 hrs. lab and 3 hrs. lecture). May be repeated for credit if the topics are substantially different. Variable. *Prerequisites: PSYC 150/151 and 3 additional credits in Psychology or permission of the instructor.*

PSYC 591 Seminar in Psychology 3 cr.
Oral reports on a selected theme topic presented and discussed by students in a group setting. Written reports may also be required. Attendance at all seminar meetings expected. May be repeated for credit if topics are substantially different. Variable. *Prerequisites: PSYC 150/151 and 3 additional credits in Psychology or permission of the instructor.*

PSYC 600 Introduction to Counseling and Assessment 3 cr.
Practical and theoretical foundation for further study. The nature of helping relationships, conducting clinical assessment, psycho-social assessment, mental status exam, dynamic formulation, stages in the counseling process, and the counselor as a professional helper. Role playing, audio and/or video tape experiences, and related skill-development exercises. *Prerequisites: Enrollment limited to students admitted to the M.S. in Counseling Psychology Program or permission of the instructor.*

PSYC 602 Advanced Research Evaluation and Interpretation 3 cr.
Analysis of research design theory and practice. Development of skills to evaluate and apply research to counseling (practice). *Enrollment limited to students admitted to the M.S. in Counseling Psychology Program or permission of the instructor.*

PSYC 610 Small Group Dynamics/ Introduction to Group Counseling 3 cr.
Small group process, including leadership, early and later stages in the development of a group; application and integration of group counseling theories and techniques. Participation in lab exercises required. *Prerequisite: PSYC 410 or PSYC 510. Enrollment limited to students admitted to the M.S. in Counseling Psychology Program or permission of the instructor.*

PSYC 614 Advanced Developmental Psychology 3 cr.
General survey of the principle theories and research concerning human development. Areas discussed include psychosocial, cognitive, and physi-

cal development. The clinical implications of development are considered. *Prerequisites: Undergraduate developmental psychology course and admission to the M.S. in Counseling Psychology Program or permission of the instructor.*

PSYC 616 Psychological Issues in Career Counseling 3 cr.
The interconnectedness of work/career issues to the other facets of an individual's life, providing a framework for understanding how psychological issues affect one's ability to function effectively in the workplace, and, in turn, how work-related issues affect one's non-work existence. Development of career counseling and assessment skills.

PSYC 617 Adult Psychopathology 3 cr.
Examination of the nature, classification and etiology of adult mental disorders. Biopsychosocial approach is emphasized, and evidence-based treatment is considered. *Prerequisites: Undergraduate abnormal psychology or permission of instructor.*

PSYC 618 Child Psychopathology 3 cr.
Examination of the nature, classification, and etiology of child/adolescent emotional and behavioral disorders. Developmental psychopathology and biopsychosocial approaches are emphasized. Evidence-based treatment is considered. *Prerequisite: PSYC 614. Enrollment limited to students admitted to the M.S. in Counseling Psychology or permission of the instructor.*

PSYC 619 Professional, Ethical & Legal Issues in Counseling 3 cr.
Professional standards, legal standards and ethical issues and practices in counseling, including substance abuse counseling.

PSYC 625 Counselor as a Person 3 cr.
Exploration of the interface between the person of the counselor and the professional role demands. Focus on elements and issues in the personal and professional arenas of the counselor's life as they impact ability to function effectively in the counseling process. Emphasizes self-awareness and maintenance of balance and healthy boundaries as essential components of ethical practice. Not open to students who have received credit for the former EDUC 590 or PSYC 692 special topics Counselor as a Person course. *Prerequisite: PSYC 510 or 600, or SCCO 600, or permission of the instructor.*

PSYC 630 Theories and Techniques of Counseling I 3 cr.
Evidence-based theory and treatment strategies. Emphasis on in-class practice. *Prerequisites: PSYC 600. Enrollment limited to students admitted to the M.S. in Counseling Psychology Program or permission of the instructor.*

PSYC 640 Theories & Techniques of Counseling II 3 cr.
Advanced evidence-based theory and treatment strategies. Emphasis on in-class practice. *Prerequisites: PSYC 630. Enrollment limited to students admitted to the M.S. in Counseling Psychology Program or permission of the instructor.*

PSYC 650 Family Therapy 3 cr.
Emphasis on evidence-based family therapy approaches. *Prerequisites: PSYC 600, PSYC 614, PSYC 618, and PSYC 630. Enrollment limited to students admitted to the M.S. in Counseling Psychology Program or permission of the instructor.*

PSYC 660 Individual Assessment 3 cr.
Study and application of Intelligence scales and other instruments for evaluating characteristics of the individual. Case-appropriate use of materials for intellectual assessment will be emphasized with the opportunity to expand into aptitude, achievement, interests, personality assessment. *Prerequisites: PSYC 408 or PSYC 508, and PSYC 600. Enrollment limited to students admitted to the M.S. in Counseling Psychology Program or permission of the instructor.*

PSYC 670 Multicultural Counseling Techniques 3 cr.
Focuses on developing skills and a conceptual framework that will enhance the student's ability to counsel individuals of diverse cultural backgrounds. Self-understanding and its effect on cross-cultural relationships will also be emphasized. *Prerequisites: PSYC 600 or SCCO 600 or permission of the instructor.*

PSYC 680 Advanced Treatment Strategies with Children, Adolescents and Families 3 cr.
Emphasis on evidence-based treatment approaches for children, adolescents, and their families. *Prerequisites: PSYC 600, PSYC 614, PSYC 618, PSYC 630, and PSYC 650. Enrollment limited to students admitted to the M.S. in Counseling Psychology Program or permission of the instructor.*

PSYC 686 Addictions Issues and Treatment 3 cr.
Practical application of research and theory to addiction counseling. Overview of treatment-related issues, including assessment and diagnosis. Review of psychopharmacology. *Prerequisites: PSYC 410/510 or 600, or permission of the instructor.*

PSYC 692 Advanced Seminar in Counseling 3 cr.
Advanced study in major topic areas of counseling. *Prerequisite: permission of instructor. Enrollment limited to students admitted to the M.S. in Counseling Psychology Program or permission of the instructor.*

PSYC 695 Internship in Counseling 5-12 cr.
On-site supervised experience in vocational, educational, and psychological counseling. Integration of counseling skills, theory, ethics, and practices. Between 15 and 36 hours per week. Graded Pass/Non Pass. *Prerequisites: all program requirements completed except PSYC 692; permission of the instructor.*

PSYC 696 Advanced Internship in Counseling 5-12 cr.
Continuation of PSYC 695. Placement in appropriate on-the-job, on-site supervised situations. Graded Pass/Non Pass. *Prerequisite: completion of PSYC 695.*

PSYC 698 Readings in Psychology 1-6 cr.
Advanced individualized study under direction of faculty. Summaries and conclusions to form required written report. Usual credit 1-3 hrs. Repeatable with different topics. Proposal required. *Prerequisite: graduate standing.*

PSYC 699 Individual Research in Psychology 1-6 cr.
Research, practicum, or other individualized learning experience, directed by faculty. Reading and group setting projects ineligible (see PSYC 698 and 490/491). Formal written report required. Usual credit 1-3 hrs. Repeatable with different topics. Proposal required. *Prerequisite: graduate standing.*

Recreation & Parks Management

Health

HLTH 505 Human Sexuality 3 cr.
Content and topics related to sexual and reproductive health relative to the individual and society. Spring.

HLTH 600 Public Health Practice 3 cr.
Foundations of community/public health concepts, practices, settings and professional responsibilities and competencies. Spring.

HLTH 603 Foundations of Health Behavior 3 cr.
Introduction and examination of the models, theories and research related to effective methods of motivating and facilitating positive health behavior changes and practices within individuals and populations. Fall.

HLTH 609 Health Communications and Resources 3 cr.
Identification, development, design and delivery of information intended to positively impact the health, health behavior and decision-making of individuals and populations.

HLTH 693 Field Work in Health Agencies 2-4 cr.
Field study and participation in planned programs of official and voluntary health agencies. Offered as needed.

Recreation

RECR 593 Field Experience in PRRM 3 cr.
A guided work experience directly related to the student's academic program. Course does not count toward degree requirements.

RECR 611 Concepts and Foundations of Leisure 3 cr.
A study of recreation and leisure behavior, including concepts, theories and terminology. Emphasizes a historical and literary examination of the park and recreation field as a social movement and as a leisure industry.

RECR 641 Managing Open Space Resources 3 cr.
Focus on the integration of the subsystems which comprise a resource management plan from a recreational perspective including geology, soils, topography, vegetation, wildlife, hydrology, water quality, historical, cultural, and archeological resources.

RECR 642 Land Use Strategies for Conservation & Protection 3 cr.
Develops an understanding of the public powers commonly used to protect and conserve open space, historic and cultural resources, and public park and conservancy lands from threats of development and encroachment.
Prerequisite: RECR 641

RECR 651 Organizational Behavior & Leadership in PRRM 3 cr.
Addresses organizational behavior and leadership including the following topics: management by objectives, total quality management (TQM), time management, conflict management, group dynamics, relationship to boards and commissions, and motivating employees.

RECR 652 Fiscal Management in PRRM 3 cr.
Addresses obtaining, allocating and reporting funding. Topics include planning strategies, fiscal planning, budget development, financial management tools, enterprise accounts, contracts and grants.

RECR 653 Communications & Organizational Decision Making in PRRM 3 cr.
Focus on understanding the development and role of the executive as a decision-maker and leader within an organization and on the development of oral and written communication skills at the executive level.

RECR 654 Developing Promotional Information Systems in PRRM 3 cr.
Focus on the development of information systems to promote the agency and its programs. Topics include client-oriented marketing, needs assessments, promotion and public relations.

RECR 655 Current Management Issues in PRRM 3 cr.
Focus on topics of special interest to managers in PRRM such as personnel management, the changing work place, trends in leisure services, changing role and scope of public park and recreation agencies, legal issues, contracts, negligence, liability, risk management, and emerging human resource issues. *Prerequisites: RECR 651, 652, 653, 654*

RECR 681 Research Methods in PRRM 3 cr.
Provides an introduction to research methods used in the PRRM field.

RECR 682 Evaluation & Statistics in PRRM 3 cr.
Examines evaluation techniques and basic statistics used in the PRRM field. *Prerequisite: RECR 681*

RECR 683 Thesis Preparation 3 cr.
Assists students in developing their research problem or thesis including the statement of the problem, review of the literature and methodology. *Prerequisites: RECR 681, 682*

RECR 694 Mentorship Program in PRRM 3 cr.
A guided experience under the direct supervision of a leader in the field. Course does not count toward degree requirements.

RECR 699 Individual Research in PRRM 3 cr.
An individual investigation or project related to the area of concentration of the student. Course does not count toward degree requirements.

RECR 700 Research Project of Thesis variable with a minimum of 6 cr.
Individual investigation, case study, or project related to the area of concentration and professional education. Enroll in final credit(s) of this course in the semester in which you expect the paper or project to be approved. Should you not complete the thesis or project in the final semester, you will receive a CS grade in this course and will be required to re-enroll in a minimum of one additional credit of this course each fall and spring semester thereafter until the paper or project is completed. Your progress and the decision of the thesis advisor will determine the number of credits for which you must register. Course is graded P/NC. *Prerequisite: RECR 683 or permission of the instructor.*

Social Science

SOSC 700 Master's Research Paper or Project 3 cr.
An individual investigation or project related to area of concentration and professional education.

Sociology

SOCI 536 Sociological Aspects of Mass Communication 3 cr.
The social development of the mass media, societal influences upon them, and their effects upon society. *Prerequisite: 9 hrs. of sociology or permission of instructor.*

SOCI 542 Juvenile Delinquency 3 cr.
The social causes and consequences of juvenile delinquency. Juvenile law, the police, courts, and correctional institutions. *Prerequisite: SOCI 100 or SOCI 111.*

Soci 568 Sociology of Later Life 3 cr.
The dimensions of aging, including the aging process, the implications of increasing life expectancy, and societal reactions to the aged. *Prerequisite: SOCI 100 or SOCI 111*

SOCI 591 Seminar in Sociology 3 cr.
Advanced studies in selected topics. Individual study and research for class reports. Formal paper required. *Prerequisite: permission of instructor.*

SOCI 599 Individual Problems in Sociology 1-3 cr.
Special research project open to any upper-level student who submits a proposal, prior to the semester of the project, to the professor who will supervise the project. Department Chair's written approval of the project is required. Formal report of the study is required and filed. *Prerequisite: permission of the instructor.*

SOCI 625 Community Analysis for Administrators 3 cr.
Appraisal of community theory; practical applications of research to community reconnaissance. The role of community information and personnel in decision-making. *Prerequisite: enrollment in the University of Maryland Administration Doctoral Program.*

Theatre

THEA 500 Theatre Production 3-6 cr.

Practical application of the principles of theatre production on the advanced level, involving participation in actual production, classes, and workshops of university-affiliated professional theatre. May be repeated to a maximum of 9 credits. *Permission of department required.*

THEA 590 Special Topics in Theatre 1-6 cr.

Research or applied experience on an announced selected topic. May be repeated to a maximum of 6 credits. *Permission of department required.*

THEA 593 Field Work in Theatre Practice 1-3 cr.

Participation in production and/or management for an approved theatre, or for an organization in a related communication field. Participants in university-affiliated theatre may be eligible. May be repeated to a maximum of 6 credits. *Permission of department required.*

THEA 699 Individual Research in Theatre 1-6 cr.

Individual research in a topic related to theatre. Topic and study outline to be approved by department chair prior to registration. Written and oral reports required. Can be repeated to a total of 6 credits.