

COURSE DESCRIPTIONS

In this section of the catalog, all courses taught at Arkansas Tech University are listed alphabetically by subject area. Courses fulfilling subject matter requirements in more than one area are cross-listed; e.g., the listing POLS(HIST) 4043 is offered for three semester hours of credit in either political science or history. For departmental write-ups and detailed curricula of programs of study, see the appropriate division of the preceding section.

Course numbers are to be interpreted as follows:

The first digit refers to the level of the course: 1-freshman, 2-sophomore, 3-junior, 4-senior; 0-designates a course that cannot be used to satisfy general education requirements nor provide credit toward any degree.

Normally, the middle two digits merely differentiate the course from others and have no meaning for the student, and the last digit refers to the number of hours of credit allowed for the course. Exceptions to this include internships, externships, practicums and variable credit classes where hours earned can be 10 or more. In these cases, the last two numbers refer to the number of hours of credit allowed for the course.

Typically an hour of credit requires one hour of classroom work per week for the duration of a semester.

Accounting

(Additional prerequisites for 3000- and 4000-level courses are listed in the College of Business section of this catalog.)

ACCT 2003 Accounting Principles I

Each semester. Prerequisite: COMS 1003 or BUAD 2003. Fundamental process of accounting, books of original entry, preparation of working papers, adjusting entries, and financial statements for sole proprietorships. Accounting majors may not repeat this course to raise grade point in their major field after completing ACCT 3013.

ACCT 2013 Accounting Principles II

Each semester. Prerequisite: ACCT 2003. Accounting processes applied to corporations and partnerships. Manufacturing cost, income tax, managerial reports, cash flow, and statement analysis. Accounting majors may not repeat this course to raise grade point in their major field after completing ACCT 3013.

ACCT 3003 Intermediate Accounting I

Prerequisites: ACCT 2013; junior standing in College of Business. A comprehensive study of accounting theory governing preparation of financial statements with emphasis on conceptual framework, development of accounting standards, and the recording and reporting process. Cash, receivables, inventories, property, plant and equipment, intangible assets, and other selected topics.

ACCT 3013 Intermediate Accounting II

Prerequisite: ACCT 3003. Continuation of ACCT 3003. Topics covered include current and long-term liabilities, contingencies, stockholders' equity, earnings per share, temporary and long-term investments, revenue recognition, accounting changes, cash flows, statement analysis, and disclosure in financial reporting.

ACCT 3023 Accounting Information Systems

Spring Semester. Prerequisites: MGMT 2013 and ACCT 3003. A study of accounting information processing, the systems concept, the analysis and design of accounting information systems, and database hardware and software technology as they apply to producing accounting information to be used in decision making.

ACCT 3043 Federal Taxes I

Prerequisite: ACCT 2013. A study of federal income tax laws and their relationship to other forms of taxation with primary emphasis on the determination of federal income tax liability and tax planning for individuals.

ACCT 3053 Federal Taxes II

Prerequisite: ACCT 3043. A study of federal income tax laws with primary emphasis on the determination of federal income tax liability and tax planning for entities other than individuals.

ACCT 3063 Managerial Accounting

Prerequisite: ACCT 2013. A study of accounting principles, concepts and procedures as an aid to management for internal use in planning, controlling and decision making. Financial statements, cost accounting, cost behavior, budgets, capital expenditures, pricing decisions, and other selected topics will be covered.

ACCT 4003 Advanced Accounting I

Prerequisite: ACCT 3013. A comprehensive study of complex accounting problems involving financial statement treatment of income taxes, pensions, and leases. Problems underlying accounting for partnerships, corporate liquidations and reorganization, and estates and trusts are examined.

ACCT 4013 Advanced Accounting II

Prerequisite: ACCT 3013. A comprehensive study of complex problems involving mergers and acquisitions, consolidated financial statements, segment and interim reporting, multinational accounting, SEC, and accounting theory.

ACCT 4023 Cost Accounting

Spring. Basic principles of cost accounting, departmentalization, budgets, standard cost, variance analysis, job-order and process costs.

ACCT 4033 Auditing

Fall. Prerequisite: ACCT 3013. Auditing procedures and concepts, audit working papers and reports, evaluation of internal controls, legal and ethical environment.

ACCT 4053 CPA Review

Spring. Prerequisites: ACCT 3043 and 4003. A review of problems relating to preparation for the C.P.A. examination. Emphasis on all four examination parts: practice auditing, law, and theory with concentration in theory and practice.

ACCT 4071-3 Seminar in Accounting

Prerequisite: Permission of the Department. Accounting topics of current interest will be covered. Coverage will include international accounting practices, S.E.C., and accounting ethics. Cases and small group activities will be utilized. Participants will prepare and present written and oral reports on topics under study. Credit for one to three hours may be earned depending upon the material covered.

ACCT 4083-6 Internship in Accounting

Prerequisite: Permission of the Accounting Department Head and senior standing. A structured assignment which allows a senior accounting major to gain "real world" professional experience in an accounting position relating to an area of career interest. The student works full-time one semester in the office of a cooperating firm under the supervision of a member of management of that firm. An accounting faculty member will observe and consult with the student and the cooperating firm's management periodically during the period of internship. A term paper prepared by the student will be required.

ACCT 4093 Governmental Accounting

Prerequisite: ACCT 2013. Study of GAAP underlying accounting for governmental/nonprofit entities. Governmental, Proprietary, and Fiduciary funds along with Fixed Asset and Long-term Liability Account Groups are covered.

ACCT 4103 Special Topics in Accounting

This course provides in-depth exploration of selected accounting topics. The primary topic will vary from offering to offering; thus, the course may be taken more than once.

Agricultural Animal Science

AGAS 1001 Principles of Animal Science Laboratory

Study of management and the facilities used in the production of beef cattle, swine, sheep, and horses. Laboratory mandatory for all animal science majors. Optional for others. Laboratory two hours.

AGAS 1014 Principles of Animal Science

A study of the American livestock industry and the scientific principles underlying the management and production of livestock and poultry. Lecture three hours, laboratory two hours.

AGAS 2083 Feeds and Feeding

Prerequisites: AGAS 1014, CHEM 1114, or consent of instructor. Principles of animal nutrition, characteristics of feed ingredients, feeding strategies, and formulation of rations for farm animals. Lecture three hours.

AGAS 3004 Reproduction in Farm Animals

Prerequisite: AGAS 1014 or consent of instructor. Anatomy and physiology of the reproductive system of farm animals; to include a study of the causes of reproductive failure, management to improve reproductive efficiency, and practical training in pregnancy testing and artificial insemination of cattle. Lecture three hours, laboratory two hours.

AGAS 3014 Beef Cattle Management

Prerequisite: AGAS 1014 or consent. A study of practices in management of beef cattle including breeding, feeding, care and marketing, with emphasis on production in the South. Lecture three hours, laboratory two hours.

AGAS 3104 Swine Management

Prerequisite: AGAS 1014 or consent of instructor. A study of current practices during the farrowing, growing, and finishing phases of swine production. Topics covered include housing, feeding, scheduling, reproduction, disease control, and waste disposal. Lecture three hours, laboratory two hours.

AGAS 3113 Light Horse Production

Prerequisite: AGAS 1014 or consent of instructor. A study of breeding, feeding, management, and disease-control practices in light horse production. Lecture three hours.

AGAS 3303 Poultry Management

Prerequisite: Junior standing or consent of instructor. A study of the management practices involved in the various phases of the production of eggs, broilers, turkeys, and breeders. Lecture three hours.

AGAS 3323 Poultry Nutrition

Prerequisite: Junior standing or consent of instructor. An introductory course in poultry nutrition. A study of the essential nutrients for poultry, available sources of these nutrients and formulation of diets that supply the nutrients in their appropriate amounts. Lecture three hours.

AGAS 3333 Poultry Processing and Product Technology

Prerequisite: Junior standing or consent of instructor. A study in depth of the overall industry practices and problems covering the processing, handling, marketing, and preparation of poultry meat and by-products. Lecture three hours.

AGAS 4203 Animal Nutrition

Prerequisites: CHEM1114 and AGAS 2083 or consent of instructor. Digestion, absorption of nutrients, and metabolism of farm animals. Includes a study of the requirements for maintenance, growth, activity, and reproduction of ruminants and non-ruminants. Lecture three hours.

AGAS 4303 Poultry Diseases

Prerequisite: Junior standing or consent of instructor. The etiology, basic pathology, and combatants of bacterial, viral, protozoan, and mycotic diseases of poultry. Lecture three hours.

Agricultural Business and Economics

AGBU 1013 Principles of Agricultural Business

Overview of the economic theories associated with the production, consumption, and marketing of agricultural products, and with the policies designed to achieve efficiency and welfare goals in agriculture. Lecture three hours.

AGBU 2063 Principles of Agricultural Macroeconomics

Prerequisite: AGBU 1013. A study of macroeconomic variables that affect agriculture with emphasis on consumption, unemployment, inflation, government spending and taxes, investments, national income, and money and banking. Lecture three hours.

AGBU 2073 Principles of Agriculture Microeconomics

Prerequisite: AGBU 1013. A study of microeconomics variables that affect agriculture with emphasis on price determination, production, costs, income distribution, perfect and imperfect competition. Lecture three hours.

AGBU 3133 Intermediate Agricultural Macroeconomics

Prerequisite: AGBU 2063 and 2073 or consent of instructor. A study of macroeconomic theory and its application to the agriculture industry. Lecture three hours.

AGBU 3143 Intermediate Agriculture Microeconomics

Prerequisite: AGBU 2063 and 2073 or consent of instructor. A study of microeconomic theory and its application to the agriculture industry. Lecture three hours.

AGBU 3213 Career Development in Agriculture

Prerequisite: Junior standing. Study of the professional opportunities and responsibilities associated with agricultural business careers. Interaction with professionals in the chosen career along with development and improvement of written communication, oral communication, and leadership skills. Lecture three hours.

AGBU 3993 Internship I in Agriculture

Prerequisite: Approval of the department head. A supervised, practical experience providing undergraduate agribusiness majors with a hands-on, professional experience in a position relating to an area of career interest. The student will work in a local cooperating agribusiness establishment under the supervision of a member of management of that firm. A minimum of 300 clock hours of supervision, maintain a weekly internship log and prepare a final report. Note: only three hours of Internship I in Agriculture may be used to satisfy the curriculum requirements for a B.S. degree in Agribusiness.

AGBU 4003 Agri-Business Management

Prerequisite: AGBU 1013, Junior standing, or consent of the instructor. A study of the managerial practices and procedures that apply to all agriculture businesses. Emphasis is placed on the use and application of management and economic principles in decision making directed toward profit maximization. Lecture three hours.

AGBU 4013 Agricultural Marketing

Prerequisite: AGBU 2063 and 2073, or consent of instructor. A study of marketing functions, practice, organizational structure, legal aspects of agricultural marketing in relation to marketing policies, analysis of consumer behavior, and market demand. Lecture three hours.

AGBU 4023 Agricultural Finance

Prerequisite: AGBU 2063 and 2073 and ACCT 2003. Designed as an economic and accounting study of the processes in agricultural businesses. Manufacturing costs, income tax, managerial reports, cash flow, and statement analysis of agricultural businesses along with capital allocation and the purpose and efficiency of agricultural lending institutions are analyzed. Lecture three hours.

AGBU 4033 Agricultural Policy

Prerequisite: AGBU 2063 and 2073 or consent of instructor. Designed as an introduction to historical and current federal governmental legislation in agriculture. Specific emphasis is placed on the logic, beliefs, attitudes and values of the American people coincident with the social, economic, and political environment, and on evaluating the objectives, means and the observed results through the criteria of resource allocation and income distribution in the agricultural sector of the economy. Lecture three hours.

AGBU 4043 Appraisal of Farm Real Estate

Prerequisite: AGBU 2063 and 2073, or consent of instructor. A practical application of principles and practices in farm real estate evaluation, emphasizing the processes of value development and uses. Lecture three hours.

AGBU 4053 Agricultural Price Analysis

Prerequisite: AGBU 2063 and 2073. Study of the trends, cycles, and seasonal patterns associated with agricultural markets and institutional arrangements. Graphical and statistical analysis of commodity data and the fundamentals of agricultural futures markets are covered. Lecture three hours.

AGBU 4063 Agricultural Investments

Prerequisite: AGBU 2063 and AGBU 2073, senior standing or consent of instructor. An in-depth analysis of investment opportunities available in the field of agriculture. Emphasis will be on investment in stocks, bonds, agricultural commodities, futures hedging, and in international currencies. Students will be required to create and maintain a diversified investment portfolio with weekly monitoring of their chosen investments. Lecture three hours.

AGBU 4951-4 Undergraduate Research in Agricultural Business and Economics

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

AGBU 4983 Internship II in Agriculture

Prerequisite: Internship I in Agriculture, approval of the department head, junior or senior standing, minimum of 2.5 GPA overall. A supervised, practical experience providing undergraduate agribusiness majors with a hands-on, professional experience in a position relating to an area of career interest. The student will work in a local cooperating agribusiness establishment under the supervision of a member of management of that firm. A minimum of 300 clock hours of supervision, maintain a weekly internship log, prepare a final report and present at least a 15 minute seminar to the agriculture department. Note: only three hours of Internship II in Agriculture may be used to satisfy the curriculum requirements for a B.S. degree in Agribusiness.

AGBU 4991-4 Special Problems In Agriculture

Prerequisite: Permission of the department. One to four hours credit, depending on the nature and extent of the problem. This is a course designed to introduce qualified students to specific agricultural areas including Agribusiness, Animal Science, Horticulture, or Plant Science. Note: only six hours of Special Problems in Agriculture may be used to satisfy the curriculum requirements for the B.S. degree in Agribusiness.

Agricultural Engineering/ Mechanization

AGEG 3003 Solving Agricultural Problems

Prerequisite: Junior standing and fulfill general education mathematics requirements. This course will use dimensional analysis to solve agriculturally oriented problems such as irrigation, fertilizer, and organic matter application rates; energy cost-estimates; pump sizing for heads and flow rates; dilution factors; and feed ingredient selection. The course will use computers and such programs as MathCad and Microsoft Excel.

AGEG 3203 Soil, Water and Forest Conservation

Prerequisite: Junior standing or consent of instructor. Causes and control of soil and water losses; methods of erosion control; relationship of soil and water conservation to forest, recreation, pollution and wildlife management. Lecture three hours.

AGEG 3213 Watershed Management

Prerequisite: Junior standing or consent of instructor. An introductory course in the problems of water supplies from surface sources and underground aquifers. Practices to develop supplies, to protect sources, and maintain water quality will be emphasized. Lecture three hours.

AGEG 3413 Agricultural Waste Management

Prerequisites: MATH 1113, CHEM 1114, and AGSS 2014. A study of potential adverse environmental quality problems associated with agricultural operations, current trends and innovative solutions to waste management problems, and current legal constraints and regulating agencies. Lecture three hours.

Agricultural Pest Management

AGPM 3104 Introduction to Entomology

This course will introduce the student to insect diversity and the identification of the major families of insects. Laboratory time will be spent learning family characteristics and collecting and preserving insect specimens. Lecture will consist of topics such as insect diversity, morphology and physiology. \$25 course fees.

AGPM 3124 Applied Pest Control

Prerequisites: AGPS 1003, AGPM 3104, AGPS 3053, Junior standing or consent of instructor. Advanced concepts and techniques used in modern pest control practices and the chemistry and environmental fate of pesticides.

AGPM 4103 Integrated Pest Management

Prerequisite: AGPS 1003, Junior standing or consent of instructor. A systematic approach utilizing biological, cultural and genetic control methods to suppress pest numbers in agroecosystems.

Agricultural Plant Science

AGPS 1003 Principles of Agronomy

A study of important agronomic practices associated with crop production, including classification of crops, the role of soil and the environment, crop management, cropping systems, integrated pest management and harvest methods. Lecture three hours.

AGPS 1024 Principles of Horticulture

Principles and practices in propagation of plants, sexual and asexual reproduction methods; construction and management of greenhouses. Lecture three hours, laboratory two hours.

AGPS 1033 Introduction to Forestry

General survey of the five fields of forestry; a preview of forestry subjects; forestry resources; some emphasis on silviculture, measurement, protection, utilization, preservation and forest administration. Lecture three hours.

AGPS 3024 Forage Crops and Pasture Management

Prerequisites: AGPS 1003, Junior standing or consent of instructor. Selection, culture, production, distribution and uses of pasture and forage plants; management problems in hay and silage; emphasis on utilization and improvement of pasture. Lecture three hours, laboratory two hours.

AGPS 3044 Plant Propagation

Prerequisite: AGPS 1024, Junior standing or consent of instructor. A study of the principles and practices in the propagation of herbaceous and woody indoor plants and flowers. Lecture three hours, laboratory two hours.

AGPS 3053 Weed Ecology

Prerequisite: AGPS 1003 and Junior standing or consent of instructor. The principles of weed ecology including weed demography and population dynamics, competition, interference, soil seed bank concept and systematic approaches to weed management.

AGPS 3064 Vegetable Growing

Prerequisite: AGPS 1024, Junior standing or consent of instructor. The application of scientific facts and principles that are involved in the successful production of vegetables under cover and/or in the open. Lecture three hours, laboratory two hours.

AGPS 3074 Floriculture

Prerequisite: AGPS 1024, Junior standing or consent of instructor. Commercial production and marketing of major cut flower crops, bedding plants, and flowering pot plants under cover and/or in the open. Lecture three hours, laboratory two hours.

AGPS 3083 Small Fruit and Nut Culture

Prerequisite: AGPS 1024, Junior standing or consent of instructor. A study of the factors underlying the commercial and home production of small fruits and nuts, including a study of varieties, propagation, pruning, spraying, harvesting, and marketing. Lecture three hours.

AGPS 3093 Greenhouse Operation and Management

Prerequisite: AGPS 1024, Junior standing or consent of instructor. Greenhouse construction and management of heating, cooling, moisture, fertilization, lighting, insect and disease control in the growth of major greenhouse crops. Lecture three hours.

AGPS 3244 Plant Pathology

Prerequisite: BIOL 2134 or BIOL 1014. Introductory course in plant diseases. A study of the causes, symptoms, spread and control of plant diseases. The emphasis is placed on the interaction between disease-causing agents and the diseased plant and the way in which environmental conditions influence the mechanisms by which factors produce plant disease. Lecture three hours, laboratory two hours.

AGPS 4103 Crop and Garden Insects

Prerequisite: AGPS 1024, Junior standing or consent of instructor. Anatomy, physiology, ecology, life history, and control of insects affecting crops and garden plants. Lecture three hours.

Agricultural Soil Science

AGSS 2014 Soils

Prerequisite: CHEM 1114. Development, classification, and properties of soils. A review of the major areas of soil science and their application to agricultural production and the environment. Lecture three hours, laboratory two hours.

AGSS 3033 Soil Fertility

Prerequisite: AGSS 2014. Physical, chemical, and biological properties that relate to soil fertility as measured by plant production and quality. Growth response to fertilizers and fertilization methods. Lecture three hours.

Allied Health Science

AHS 1023 Basic Pharmacology with an Overview of Microbiology

Fall and Spring. Enrollment is limited to medical assistant and health information management majors. Topics to be covered in addition to introductory pharmacology will include basic chemistry as it applies to the medical laboratory and a brief overview of microbiology and immunology. Basic pharmacology as it relates to the drug interaction with each of the body systems and classifications of drugs will be covered. Students will utilize the Physicians' Desk Reference (PDR) in the course. Lecture three hours.

AHS 2013 Medical Terminology

Fall and Spring. A study of the language of medicine including word construction, definition, and use of terms related to all areas of medical science, hospital service, and the allied health specialties. Duplicate credit for AHS 2013 and 3013 will not be allowed.

AHS(BIOL) 2022 Medical Laboratory Orientation and Instrumentation, Laboratory

Fall. Prerequisites: a grade of "C" or higher in BIOL 1114 or BIOL 2124. Enrollment is limited to students enrolled in BIOL 2023. Topics covered will include laboratory orientation, laboratory procedures/techniques, introduction to clinical laboratory instrumentation (both manual and automated), quality control principles, and care of equipment. Laboratory four hours per week. \$10 laboratory fee.

AHS(BIOL) 2023 Medical Laboratory Orientation and Instrumentation

Fall. Enrollment is limited to medical assistant and/or medical technology majors who have completed at least BIOL 1114 or BIOL 2124 (AHS 2013 recommended) with a grade of "C" or higher and are in the final year of their program at Tech. This course is concerned with both the theoretical and practical application of a wide range of clinical duties performed by the medical assistant and medical technologist. Topics covered will include hematology, urinalysis, hemostatic processes, body chemistry, microbiology, and blood typing. Lecture three hours.

AHS 2032 Medical Assistant Clinical Practice Laboratory

Spring. Enrollment is limited to medical assistant majors who are enrolled in AHS 2034 and in the final semester before the medical assistant externship assignment. This course is designed to allow for practice in local area clinics. Students will complete a two-hour laboratory in the simulated lab and will be assigned to three hours in area clinics on a weekly basis. While at the medical facility students will apply the theories and concepts covered in AHS 2023 and AHS 2034. Five-hour laboratory weekly. \$10 laboratory fee.

AHS(HIM) 2033 Coding Principles for Medical Office

Prerequisites: AHS 2013, 1023, BIOL 2004, or permission of instructor. A study of medical coding using ICD-9-CM and CPT codes in the medical office. Students will be taught to evaluate patients' medical records to correctly assign both diagnostic and procedural codes required for healthcare reimbursement in the medical office setting.

AHS 2034 Medical Assistant Clinical Practice

Spring. Enrollment is limited to medical assistant majors. Prerequisite: AHS 2023 and 2022. Topics covered will include examination room techniques, sterilization procedures, operation and care of electrocardiograph, assisting with minor surgery, physiotherapy, pharmacology, medications and specialist assisting. Students must subscribe to malpractice liability insurance. Lecture four hours.

AHS 2044 Medical Assistant Administrative Practice

Fall. Prerequisite: AHS 2013. This course is open only to medical assistant majors in the final part of the program or by permission of the medical assistant program director. A survey course emphasizing the business administrative duties of the medical assistant. Course content will include working with patients, medical records, medical dictation, office procedures, and office management. Student must subscribe to malpractice liability insurance. Lecture three hours, laboratory two hours. \$10 laboratory fee.

AHS 2053 Computers in the Medical Office with an Overview of Insurance Procedures

Spring. Prerequisites: HIM 3033, AHS 2044. This course is open only to medical assistant majors in the final part of the program or by permission of the medical assistant program director. This course will prepare the medical assistant to work as an administrative medical assistant in a health care facility. Students are introduced to the computerization of the medical office using current operating systems. Topics covered will include recording information on patients, scheduling appointments, printing reports, producing patient statements and claim forms, and filing electronic claims. Lecture 3 hours.

AHS 2055 Externship

First summer term. Prerequisites: Completion of all other required courses in medical assistant curriculum. The course is scheduled at the end of the program. It shall include the opportunity to perform various clinical and administrative procedures under supervision. The student will remain in a medical facility for a period of 160 hours. Assignments may be made anywhere in Arkansas; students must assume the full financial responsibility for this assignment. A seminar will be scheduled for the fifth week. Student must subscribe to malpractice liability insurance.

AHS 2061 Medical Assistant Seminar

First summer term. Prerequisite: AHS 2055. A one-week seminar scheduled for the week following the externship. Topics discussed will be based on those arising from the student's experiences while on his/her externship. Employment procedures will also be covered.

American Studies

AMST 2003 American Studies

An exploration of American culture through study of significant ideas, social issues and literary texts. AMST 2003 may be used to fulfill 3 hours of the Social Sciences general education requirements.

Anthropology

ANTH 1213 Introduction to Anthropology

An introduction to the subdisciplines of cultural anthropology, physical anthropology, archeology, and linguistics.

ANTH 2003 Cultural Anthropology

A study of contemporary and historical peoples and cultures of major world culture areas. May not be taken for credit after completion of ANTH 3213.

ANTH 3203 Indians of North America

A study of contemporary and historical peoples and cultures of North America.

ANTH 3223 North American Archeology

The study of prehistoric peoples and cultures of North America.

ANTH 3233 MesoAmerican Archeology

The study of prehistoric peoples and cultures of central and southern Mexico and western Central America.

ANTH 3241-4 Seminar in Anthropology

Prerequisite: Permission of instructor. A directed seminar in an area of anthropology. The specific focus will depend upon research interests, student interest, and current developments in the field of anthropology.

ANTH 4206 Workshop in Anthropology

Five-week summer session. Prerequisite: Permission of instructor and department head. An intensive five-week experience in anthropology combining classroom study and field exposure to techniques, artifacts, and findings pertinent to anthropology/archeology of North America. Extensive travel to sites and collections will be an integral part of the study experience. It may be necessary to assess a special fee which would be stated in advance.

**ANTH(HIST,MUSM) 4403 Interpretation/
Education through Museum Methods**

Prerequisites: Senior or Graduate standing, or permission of instructor. Museum perspectives and approaches to care and interpretation of cultural resources, including interpretive techniques of exhibit and education-outreach materials, and integrating museum interpretation/education into public school and general public programming. Class projects focus on special problems for managing interpretive materials in a museum setting.

**ANTH 4951-4 Undergraduate Research in
Anthropology**

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

ANTH 4991-4 Special Problems in Anthropology
Prerequisite: Permission of instructor. Independent work under individual guidance of staff member.

Art

ART (JOUR) 1163 Basic Photography

A study of the use of the camera, films, equipment, and the basics of black and white processing and printing. Includes introductions to lighting techniques, composition, and color photography.

ART 1303 Introduction to Drawing

An introduction to structural and expressive responses in drawing by the study of line, volume, shape, light perspective, the media, and their interrelations. Studio six hours. \$36 course fee.

ART 1403 Two-dimensional Design

Basic study of elements and principles of two-dimensional design employing a variety of tools and materials. Studio six hours.

ART 1503 Introduction to Graphic Design

Prerequisite: ART 1403, ART 1303 or permission of instructor. An introduction to fundamental graphic design principles, techniques and materials. \$36 course fee.

ART 2103 Art History I

An examination of the periods and western cultures responsible for major artistic monuments and achievements from pre-history through the Gothic period.

ART 2113 Art History II

A western art survey of the events, people, and stylistic trends involved in the development of major art forms from the era of the Italian Renaissance to the present.

ART 2123 Experiencing Art

This course is designed to provide a background in art and the related processes so that a student may develop powers of observation and thereby respond to a work of art.

ART 2213 Digital Skills for the Graphic Designer

Prerequisites: ART 1503 Introduction to the Macintosh computer system. Students will learn graphic design software which they will, in turn, use to create various projects. \$36 course fee.

ART 2303 Figure Drawing

Prerequisite: ART 1303. Introduction to the study of the human figure. A major emphasis will be directed to exercises in the study of anatomy, proportion, and line as it relates to the figure. Studio six hours. \$36 course fee.

ART 2403 Color Design

Basic application of color principles and color theory. Studio six hours. \$36 course fee.

ART 2413 Three-dimensional Design

Prerequisite: ART 1403. Basic study of three-dimensional problems of structure, spatial organization, and introductory sculptural concerns. Studio six hours. \$36 course fee.

ART 2503 Introduction to Opaque Painting

Prerequisites: ART 1303, 1403, 2403 or permission of instructor. The exploration of opaque painting techniques. Traditional oil, acrylic, and alkyd will be studied. Studio six hours. \$36 course fee.

ART 2703 Introduction to Sculpture

Prerequisites: ART 1303, 1403, 2413. Basic techniques of sculpture and sculptural composition. Modeling, casting, carving, and constructive processes are introduced. Studio six hours. \$100 materials fee.

ART 3003 Concepts in Art Education

Prerequisite: Sophomore Review. Introduction to theory and specialized practice in art education issues as applied to elementary art experience. Studio processes, art criticism, aesthetics, and art history methodology will be incorporated into lessons implemented as part of field experience in local elementary schools. Studio six hours. \$36 course fee.

ART 3013 Art Education Practicum

Prerequisite: Sophomore Review. Curriculum design with emphasis on visual art standards, art media, and assessment as applied to teaching on the secondary level. Students will implement a unit of study in partnership with local schools. Studio six hours. \$36 course fee.

ART 3113 Art History, American

Prerequisite: Sophomore Review. A study of art forms in architecture, painting, sculpture and craft from Colonial times to the present.

ART 3123 Art History, Renaissance

Prerequisite: Sophomore Review. A concentrated study of art forms in architecture, painting, sculpture and crafts during the period of the Italian and Northern Renaissance.

ART 3203 Typography and Layout

Prerequisites: ART 1503, ART 2213, and Sophomore Review. Beginning and intermediate problems in layout designs as well as the effective use of type. \$36 course fee.

ART 3223 Three-dimensional Graphic Design

Prerequisite: ART 1503, ART 2213, ART 3203 and Sophomore Review. Studio problems in the design and presentation of 3-D advertising packaging and displays. Studio six hours. \$36 course fee.

ART 3233 Production Techniques

Prerequisite: ART 1503, 2213, 3203, 3223, and Sophomore Review. Introductory course on methods for producing camera ready art. Studio six hours. \$36 course fee.

ART 3243 Web Design

Prerequisite: ART 2213, 3203, and Sophomore Review. Introduce basic website planning, content editing and creation using graphic arts techniques. Screen-based color theory, web design aesthetics, use of graphic editors, and interface design are explored. Studio six hours. \$36 course fee.

ART 3253 Computer Illustration

Prerequisite: ART 2213 and Sophomore Review. This course will provide students with advanced conceptual skills in computer illustration and digital imaging. Students will acquire intermediate knowledge in vector and pixel-based drawing formats, digital painting effects, comic art/video game illustration, storyboarding and coloring through the completion of integrated design projects. Studio six hours. \$36 course fee.

ART 3303 Drawing Studio I

Prerequisites: ART 1303, 2303, or permission of instructor and Sophomore Review. The application of the theories and techniques of drawing as they relate to the study of composition in finished works of art. Studio six hours. \$36 course fee.

ART 3503 Painting Studio I

Prerequisite: ART 2503 and Sophomore Review. A continued study in the opaque or transparent painting techniques. Emphasis will be directed toward the economy of conception and performance in the completion of finished works of art. Studio six hours. \$36 course fee.

ART 3533 Watercolor Painting

Prerequisite: ART 1303, 1403, 2403, or permission of instructor and Sophomore Review. The exploration of transparent water painting techniques. Studio six hours. \$36 course fee.

ART 3603 Introduction to Ceramics

Prerequisites: ART 1403 or permission of instructor and Sophomore Review. An introduction to ceramics, emphasizing the imaginative design and production of ceramic objects utilizing hand building and wheel throwing techniques. Exposure to the complete ceramic process through the use of demonstrations, slides, and lectures. Studio six hours. \$100 materials fee.

ART 3703, 3713 Sculpture Studio I, II

Prerequisite: ART 2703 and Sophomore Review. A continued study of sculptural techniques introduced in Introduction to Sculpture, allowing for student expansion and specialization on individual conceptions. Studio six hours. \$100 materials fee.

ART 3803 Introduction to Printmaking

Prerequisites: ART 1303, 1403, 2403 and Sophomore Review. A survey of traditional printmaking techniques will be taught including intaglio, relief, and monotype. Studio six hours. \$100 materials fee.

ART 3813 Printmaking Studio I

Prerequisite: ART 3803 and Sophomore Review. Printmaking activities introduced in Introduction to Printmaking will be used as a basis for the student to expand and specialize. Students will be expected to develop an individual print series in one or more print techniques. Studio six hours. \$100 materials fee.

ART 3903 Introduction to Fiber Arts

Prerequisites: Art 1303, 1403, 2403 and Sophomore Review. An introduction to fiber arts to include historical and cultural connections, techniques and processes associated with materials studies such as weaving, papermaking, textile design, and mixed media. Studio six hours. \$36 course fee.

ART 4103 Art History, Modern

Prerequisite: Sophomore Review. The study of art and architecture from neo-classicism to the present with emphasis on the art styles after Impressionism.

ART 4123 Art History, Medieval

Prerequisite: ART 2103, sophomore review or permission of instructor. A study of the art and architecture of the European Middle Ages, from the rise of Christianity through the Gothic period.

ART 4133 Art History, Native American

Prerequisites: ART 2113, sophomore review, or permission of instructor. A survey of Native American art from ancient to modern times, focusing on indigenous American worldview, the development of Native artistic traditions, and the impact of colonialism and modernization on native American visual culture.

ART 4143 Art History, Latin American

Prerequisites: ART 2113, sophomore review, or permission of instructor. A survey of Latin American art from the Colonial to the Modern period, emphasizing patronage, artistic training, materials, cross-cultural exchange, and identity.

ART (JOUR) 4163 Advanced Photography and Video

Prerequisite: ART (JOUR) 1163 or consent of instructor. An introduction to advanced photographic techniques including digital photography and nonlinear editing. Various historic and current theories of visual journalism provide a substantive base for the application of techniques.

ART 4233 Techniques for Illustration

Prerequisites: ART 1303, 1403, 2303, 2403 and Sophomore Review. Application of fine art drawing and painting techniques to illustration problems. Studio six hours. \$36 course fee.

ART 4243 Professional Portfolio Preparation for Graphic Designers

Spring. Prerequisites: Art 1503, Art 2213, Art 3203, Art 3223, Art 3233 and Sophomore Review. The purpose of this course is to prepare the student for entry into the professional world through the development of a resume and the assembly of their work into a portfolio. \$36 course fee.

ART 4313, 4323 Drawing Studio II, III

Prerequisite: ART 3303 and Sophomore Review. The further development of advanced drawing concepts and skills. This course will deal with each student on a one-to-one basis. The student will present a "contract of drawing projects" subject to instructor's approval. Studio six hours. \$36 course fee.

ART 4503, 4513 Painting Studio II, III

Prerequisite: ART 3503 and Sophomore Review. Advanced study of the opaque/transparent painting techniques. Emphasis will be theme oriented. Each student must submit to the instructor a "painting contract" which must be approved. Studio six hours. \$36 course fee.

ART 4603, 4613 Ceramics Studio I, II

Prerequisites: ART 3603 and Sophomore Review. A study of advanced techniques and skills. This course will deal with each student on a one-to-one basis. Each student must submit a "contract of ceramics project" subject to instructor's approval. Studio six hours. \$100 materials fee.

ART 4623 Animation Techniques

Prerequisite: ART 2213, 2303, 3203, and Sophomore Review. Introduce basic drawing/2D animation, and create movies/cartoons, motion graphics/interactive content using multimedia tools and techniques. Time-based media, animation timing, use of audio-visual editors, and effective storyboard techniques are explored. Studio six hours. \$36 course fee.

ART 4701 Special Methods in Art

Prerequisites: Sophomore Review, admission to student teaching phase of teacher education program and concurrent enrollment in SEED 4809. Intensive on-campus exploration of the principles of curriculum construction, teaching methods, use of community resources, and evaluation as related to teaching art.

ART 4703 Senior Project and Exhibition

Spring. Prerequisite: Junior Review, Sophomore Review. This course is required for all Graphic Design and Fine Arts majors, and elective for Art Education majors.

ART 4723 Art History Seminar

Prerequisite: Sophomore review, senior standing, or permission of instructor. This course will provide a forum for in-depth examination of a particular artist, movement, theme, or period in art history.

ART 4733, 4736 Graphic Design Internship
Prerequisites: Art 1503, 2213, 3203, 3233, Sophomore Review, Junior Review and instructor's permission. A supervised, practical experience providing graphic design majors with professional hands-on training in a position relating to an area within their chosen field of graphic design at a cooperating business.

ART 4803, 4813 Printmaking Studio II, III
Prerequisite: ART 3813, Sophomore Review and permission of Instructor. A concentration on printmaking techniques which will develop additional strength and capability in the student. Studio six hours. \$100 materials fee.

ART 4823 Art Criticism and Aesthetics
Prerequisites: Sophomore Review, Art 2103 and/or 2113. Perspectives on analyzing and interpreting works of art required for art education majors. The course may be used as an art history elective for graphics and fine arts majors.

ART 4951-4 Undergraduate Research in Art
On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

ART 4991-4 Special Problems in Art
This course requires advance approval by the instructor, department head, and the dean of school. Designed to provide certain advanced students with further concentration in a particular area. Fee may be applied depending on area of concentration.

Biology

BIOL (PHSC) 1004 Principles of Environmental Science

On demand. This course is designed to bring the student to a basic but informed awareness of and responsible behavior toward our environment and the role of the human race therein. The content will include a study of the philosophical and scientific basis for the study of ecosystems and the environment, the nature of ecosystems, the techniques used to study the environment, the origin and development of current environmental problems, the interdisciplinary nature of environmental studies, the processes of critical thinking and problem solving, and the moral and ethical implications of environmentally-mandated decisions. Lecture three hours, Lab three hours. \$20 laboratory fee.

BIOL 1011 Orientation to the Biological Sciences

This course orients entering students to the biological sciences. Topics examined in this course include an overview of the Tech Department of Biological Sciences and careers in biology, managing a biology curriculum (registration procedures, student responsibilities, and study skills), requirements for professional schools and graduate education, and undergraduate research opportunities.

BIOL 1014 Introduction to Biological Science

Each semester. An introduction to the major concepts of biological science, with an emphasis on the development of this scientific perspective and how it applies to humans. Duplicate credit for BIOL 1014 and BIOL 1114 will not be allowed. May not be taken for credit after completion of BIOL 1114, 2124, or 2134. Lecture three hours. Laboratory two hours. \$10 laboratory fee.

BIOL 1114 Principles of Biology

Each semester. Prerequisite: scores of 19 or higher on the reading, science reasoning and mathematics portions of the enhanced ACT or completion of MATH 0903 with a grade of "C" or higher, or a grade of "C" or higher in a science course. Duplicate credit for BIOL 1014 and BIOL 1114 will not be allowed. An in-depth study of biological principles and the interrelationships of biology with other sciences. Topics included are: cellular structure, intermediary metabolism and differentiation, population genetics, ecology, and evolution. Lecture three hours, laboratory two hours. \$10 laboratory fee.

BIOL 2004 Basic Human Anatomy and Physiology

Each semester. Prerequisites: a grade of "C" or higher in a science course or approval of the instructor. This course may not be taken for credit after completion of BIOL 2014, 3074, or equivalent. This course is intended for students who have a need for basic studies in functional aspects of the organ systems of the human body. Lecture three hours, laboratory two hours. \$10 laboratory fee.

BIOL 2014 Human Anatomy

Each semester. Prerequisites: a grade of "C" or higher in a science course or approval of the instructor. This is an introductory course in human anatomy which should be useful to students in the biological and health-oriented fields. The course is designed to present an introduction to the unified concepts and data that contribute to a basic understanding of the structure of the human body. The course will include familiarization with essential technical vocabulary; reference to general functions of organs and organ systems; and brief encounters with histology, embryology, and comparative anatomy. Lecture three hours, laboratory two hours. \$10 laboratory fee.

BIOL (AHS) 2022 Medical Laboratory Orientation and Instrumentation, Laboratory

Fall. Prerequisites: a grade of "C" or higher in BIOL 1114 or BIOL 2124. Enrollment is limited to students enrolled in BIOL 2023. Topics covered will include laboratory orientation, laboratory procedures/techniques, introduction to clinical laboratory instrumentation (both manual and automated), quality control principles, and care of equipment. Laboratory four hours per week. \$10 laboratory fee.

BIOL (AHS) 2023 Medical Laboratory Orientation and Instrumentation

Fall. Enrollment is limited to medical assistant and/or medical technology majors who have completed at least BIOL 1114 or BIOL 2124 (AHS 2013 recommended) with a grade of "C" or higher and are in the final year of their program at Tech. This course is concerned with both the theoretical and practical application of a wide range of clinical duties performed by the medical assistant and medical technologist. Topics covered will include hematology, urinalysis, hemostatic processes, body chemistry, microbiology, and blood typing. Lecture three hours.

BIOL (CHEM, GEOL) 2111 Environmental Seminar (See BIOL 4111)

BIOL 2124 Principles of Zoology

Each semester. Prerequisite: scores of 19 or higher on the reading and science reasoning portions of the enhanced ACT; or BIOL 1014 or BIOL 1114; or approval of the instructor. A survey of the major animal phyla: morphology, physiology, and natural history. Lecture three hours, laboratory two hours. \$10 laboratory fee.

BIOL 2134 Principles of Botany

Each semester. Prerequisite: scores of 19 or higher on the reading and science reasoning portions of the enhanced ACT; or BIOL 1014 or BIOL 1114; or approval of the instructor. Introduction to the structure, function, classification, and importance of nonvascular and vascular plants. Lecture three hours, laboratory two hours. \$10 laboratory fee.

BIOL 2881-4 Special Topics in Biology

On demand. Prerequisites: consent of the instructor. This course offers specialized instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once. Note: BIOL 2884 includes a \$10 lab fee.

BIOL 3004 Plant Taxonomy

Spring. Prerequisite: BIOL 1114 and 2134 or permission of instructor. An overview of the major principles of classification, identification, naming, and collection of representatives of vascular plants. Lecture two hours, laboratory four hours. \$20 laboratory fee.

BIOL 3014 Comparative Anatomy

On demand. Prerequisite: BIOL 2124. A comparative study of the vertebrate classes in terms of their organ systems. An emphasis is placed on evolution from aquatic to terrestrial forms and significant phylogenetic trends. Lecture two hours, laboratory four hours. \$10 laboratory fee.

BIOL 3024 Embryology

On demand. Prerequisite: BIOL 2124. A comparative study of the development of the frog, pig, and chick, and an introduction to human embryology. Lecture two hours, laboratory four hours. \$10 laboratory fee.

BIOL 3034 Genetics

Each semester. Prerequisites: BIOL 1114 (or equivalent with a grade of "B" or higher), MATH 1113 (or higher) and two semesters of chemistry. Introduction to and discussion of the principles of Mendelian, molecular and population genetics with a strong emphasis on problem solving. Laboratory exercises will involve hands-on experience with microbes, plants, animals and fungi using traditional and molecular techniques. Lecture three hours, laboratory two hours. \$10 laboratory fee.

BIOL 3043 Conservation

On demand. Prerequisite: BIOL/CHEM/GEOL 2111. A study of natural resources, their utilization in a technical society, and factors leading to their depletion. Lecture three hours.

BIOL 3054 Microbiology

Each semester. Prerequisites: One semester of chemistry and one semester of biology. An introduction to the microbial world with an emphasis on prokaryotes. Identification of bacteria based on staining, immunologic reactions, morphology and physiology. Symbionts and pathogens of human and domestic animals. Principles of control using chemical and physical agents. An overview of virology and immunology. Lecture three hours, laboratory two hours. \$10 laboratory fee.

BIOL 3064 Parasitology

On demand. Prerequisite: BIOL 2124. A survey of parasitism in the various phyla. Special emphasis is given to parasites that affect humans. Lecture two hours, laboratory four hours. \$10 laboratory fee.

BIOL 3074 Human Physiology

Each semester. Prerequisites: C grade or better in BIOL 2014 and CHEM 1114 or CHEM 2124. An introduction to the function of vertebrate body systems, i.e., muscle action, digestion, circulation, nervous control, endocrine, metabolism and respiration, with special emphasis on the human body. Lecture three hours, laboratory two hours. \$10 laboratory fee.

BIOL (FW) 3084 Ichthyology

Fall. Prerequisite: BIOL 2124. Systematics, collection, identification, natural history, and importance of fishes. Lecture two hours, laboratory four hours. \$20 laboratory fee.

BIOL 3094 Entomology

On demand. Prerequisite: BIOL 2124. Introduction to the world of insects: morphological and physiological adaptations, classification, methods and collecting and preserving common insects. Lecture two hours, laboratory four hours. \$20 laboratory fee.

BIOL (CHEM, GEOL) 3111 Environmental Seminar

(See BIOL 4111).

BIOL(FW) 3114 Principles of Ecology

Fall and Spring. Prerequisites: BIOL 2124, 2134, and one semester of chemistry. Responses of organisms to environmental variables, bioenergetics, population dynamics, community interactions, ecosystem structure and function, and major biogeographical patterns. Lecture two hours, laboratory four hours. \$20 laboratory fee.

BIOL 3124 General Physiology

Fall. Prerequisites: BIOL 1114, 2124, 2134, and two semesters of chemistry. An in-depth study of basic physiology employing examples of both plants and animals. Lecture three hours, laboratory two hours. \$10 laboratory fee.

BIOL 3134 Invertebrate Zoology

Spring. Prerequisites: BIOL 1114, 2124, 2134, and two semesters of chemistry. Morphology, physiology, natural history and taxonomy of major invertebrate phyla. Laboratory maintenance and preservation techniques. Lecture two hours, laboratory four hours. \$20 laboratory fee.

BIOL(FW) 3144 Ornithology

Spring. Prerequisite: BIOL 2124. An introduction to the biology of birds. The course covers aspects of anatomy, physiology, behavior, natural history, evolution, and conservation of birds. Laboratories address field identification and natural history of the birds of Arkansas. Students will be expected to participate in an extended 5-7 day field trip. Lecture two hours, laboratory four hours. \$20 laboratory fee.

BIOL(FW) 3154 Mammalogy

Fall. Prerequisite: BIOL 2124. Taxonomy, identification, ecology, and study natural history of the mammals. Lecture three hours, laboratory two hours. \$20 laboratory fee.

BIOL (FW) 3163 Biodiversity and Conservation Biology

Fall of even years. Prerequisites: FW(BIOL) 3114 and one of the following: BIOL 3004, FW(BIOL) 3084, BIOL 3094, BIOL 3134, FW(BIOL)3144, FW(BIOL) 3154, BIOL(FW) 3224, BIOL 4044, or permission of instructor. The concepts of, processes that produce, and factors that threaten biological diversity are introduced and examined. Further emphasis is placed on unique problems associated with small population size, management of endangered species, and practical applications of conservation biology. Lecture three hours.

BIOL 3174 Physiological Ecology

Prerequisites: BIOL 1114, 2124, 2134 and two semesters of chemistry. An in-depth study of plant and animal adaptations and responses to different environmental conditions. Comparative physiology of major systems, mechanisms of adaptation and adaptations to challenging habitats will be studied. \$10 laboratory fee.

BIOL (PSY) 3184 Animal Behavior

Spring of even years. Prerequisites: sophomore standing in biology or psychology, or approval of instructor. An introductory course in animal behavior covering behavioral responses in primitive and advanced animals exposed to a wide range of environmental and social conditions. Laboratory exercises will include field as well as in-lab exercises and will focus on observational techniques and analyses of behavioral patterns in vertebrates and invertebrates. Lecture three hours, laboratory two hours. \$20 laboratory fee.

BIOL(PHSC) 3213 Science Education in the Elementary School

Each semester. Prerequisites: Junior standing, ECED 2001, ECED 2002, and at least six credit hours in science. An overview of the most recent and research-based strategies and techniques for planning, teaching, and assessing elementary science. Inquiry-based methods and other constructivist approaches as described in the National Science Education Standards will be emphasized. Design and execution of learning activities for an elementary school setting are required. Lecture two hours, laboratory two hours; three credit hours. \$10 laboratory fee.

BIOL (PHSC) 3223 Science Education in the Middle Level

Spring. Prerequisites: 16 hours in science and MLED 2001. This course is designed to provide pre-service teachers with an integrated approach to the teaching of science in the middle grades. Theoretical and practical aspects of teaching science will be explored and students will develop curricular materials based on their explorations. Lecture two hours, laboratory 2 hours. \$10 laboratory fee.

BIOL (FW) 3224 Herpetology

Spring of odd years. Prerequisite: BIOL 2124. The phylogeny, classification, physiology, behavior, and distribution of reptiles and amphibians. The Laboratory will stress identification of the species found in Arkansas. Lecture two hours, laboratory four hours. \$20 laboratory fee.

BIOL (PHSC) 3233 Science Education in the Secondary School

Fall. Prerequisites: 16 hours in biology or 16 hours in physical science and SEED 2002. This course will examine the issues of nature and history of science, developing lessons and assessments, and science education standards for the prospective secondary school teacher. Curriculum development, including assessment and planning skills, utilizing various instructional media and inquiry methodology are emphasized. Design and execution of learning activities for a secondary school setting are required. Lecture two hours and lab two hours. \$10 laboratory fee.

BIOL/PHSC 3252 The Nature and Context of Science

On demand. Prerequisite: At least 12 hours of science courses. This seminar course examines science from a holistic perspective. It will concentrate on examining how current science develops scientific knowledge including unifying concepts across scientific disciplines, the place of science within modern society, technology and its role in science and society, and current scientific methodology.

BIOL(NUR) 3803 Applied Pathophysiology

Each semester. Prerequisites: grade of C or better in BIOL 2014 and BIOL 3074. This course focuses on the mechanisms and concepts of selected pathological disturbances in the human body. Emphasis is placed on how the specific pathological condition affects the functioning of the system involved, as well as its impact on all other body systems. Lecture 3 hours.

BIOL(PHSC) 4003 History and Philosophy of Science

On demand. Prerequisite: a Sophomore-level science course (or higher). A course in the historical development and philosophical basis of modern science. BIOL (PHSC) 5003 may not be taken for credit after completion of this course. Three hours lecture.

BIOL(PHSC) 4013 Multicultural Science Education

On demand. Prerequisites: Junior standing or admission to teacher education program. A course designed to familiarize prospective teachers with the materials, methods, and procedures to meet the needs of culturally diverse learners in the science classroom. This course includes the discussion of equity issues, the limitations of Eurocentric and androcentric science world views, how culturally diverse students learn science, instructional strategies, technology, and alternative assessment. Lecture three hours for three credit hours.

BIOL 4014 Endocrinology

Spring of odd years. Prerequisites: BIOL 1114, 2124 and one semester of chemistry. An in-depth study of the endocrine systems of animals with emphasis on vertebrates. Histology and embryology of endocrine organs or cell groups, mechanisms of stimulation, response, and actions plus comparative aspects of similar organs in different animal groups will be studied. Lecture 3 hours, laboratory two hours. \$10 laboratory fee.

BIOL 4023 Immunology

Spring. Prerequisites: Four hours each in biology and chemistry and/or consent of instructor. An overview of the human immune system, including cellular and humoral defense mechanisms, immunity to infection, hypersensitivity, transplant rejection, and tumor destruction. Immune deficiency and autoimmune diseases. Antibody structure and the use of antibodies in medicine and research. Three hours lecture.

BIOL(FW) 4024 Limnology

Spring. Prerequisite: BIOL(FW) 3114. A study of physical and chemical processes in fresh water and their effects on organisms in lakes and streams. Laboratory sessions and field trips demonstrate limnological instrumentation and methodology. Lecture two hours, laboratory four hours. \$20 laboratory fee.

BIOL 4033 Cell Biology

Fall. Prerequisites: BIOL 1114, 2124 or 2134 plus four additional hours of biology and one course from BIOL 3034, 3054, 4023 or CHEM 3343; eight hours of chemistry. The primary goal of this course is to introduce the basic cell structures and the molecular mechanisms whereby the cell functions through the directed application of energy and processing of information. Topics include methods of cell study, cellular organelles and their ultrastructures, membrane structure and function, cell differentiation, and reproduction. Lecture three hours.

BIOL 4044 Dendrology

Fall. Prerequisites: BIOL 1114 and 2134. A study of woody plants with emphasis on field recognition throughout the year. Lecture two hours, laboratory four hours. \$20 laboratory fee.

BIOL 4054 Vertebrate Histology

Spring of even years. Prerequisites: BIOL 1114, 2124 and an additional four hours in biology. A study of functional/structural relationship of cells, tissues, and organs. Exercises in the preparation and observation of tissues and development of general principles of micro-techniques. Lecture two hours, laboratory four hours. \$10 laboratory fee.

BIOL 4064 Evolutionary Biology

Spring of even years. Prerequisite: BIOL 3034 or permission of instructor. This course focuses upon the principles and major concepts in evolutionary biology from a historical and contemporary viewpoint. Morphological and molecular evolution, population genetics, systematics, the fossil record, a history of life on earth, macroevolution, and adaptation are among the topics examined in this course. Lecture 3 hours, lab 3 hours. \$10 laboratory fee.

BIOL 4074 Molecular Genetics

Spring of odd years. Prerequisite: BIOL 3034. This course continues the material introduced in Genetics (BIOL 3034) with a focus upon the major concepts and techniques in contemporary molecular genetics. Current viewpoints of the gene, gene regulation, developmental genetics, recombinant DNA technology, genomics, proteomics, and molecular evolution are among the topics examined in the course. Lecture 3 hours, laboratory 3 hours. \$10 laboratory fee.

BIOL 4083 Cancer Biology

Prerequisites: BIOL 3034. An in-depth study of major areas and topics in cancer biology, including etiology and epidemiology of cancer, impact of the human genome mapping project, molecular genetics and cell biology of cancer, cancer modeling and clinical aspects of human cancer.

BIOL 4094 Coastal Ecology

May Mini-Term. Prerequisites: BIOL 2124 and BIOL 2134 and one semester of chemistry. A focused study of coastal ecology, as represented by the Mississippi Gulf Coast. Coastal plants, animals, their interactions, and relationship to the physical environment are explored. The course includes a required field trip to the Gulf Coast. Investigations are conducted in the marshes, bays, estuaries, bogs, and barrier island systems. Students bear the cost of food and a nominal housing fee. \$20 laboratory fee.

BIOL(CHEM, GEOL) 4111 Environmental Seminar

Spring. A seminar for students pursuing the environmental option of biology, chemistry, or geology and other students interested in environmental sciences.

BIOL 4112 Biology Internship

Each semester. Prerequisite: junior or senior standing and consent of internship program director. A supervised, practical experience providing BIOL majors with a hands-on, professional experience related to their career interests. The course will allow students to gain experience in an occupational environment. Students will be placed in positions under the direction of the internship program director and work supervisor. The program will emphasize application of classroom knowledge to career goals. Approximately 200 clock hours, a proposal, a log book or journal, a summary letter from the employment supervisor, and a written report are required. A maximum of four credit hours is allowed for BIOL internship.

BIOL 4114 Biology Internship

Each semester. Prerequisite: junior or senior standing and consent of internship program director. A supervised, practical experience providing BIOL majors with a hands-on, professional experience related to their career interests. The course will allow students to gain experience in an occupational environment. Students will be placed in positions under the direction of the internship program director and work supervisor. The program will emphasize application of classroom knowledge to career goals. Approximately 400 clock hours, a proposal, a log book or journal, a summary letter from the employment supervisor, and a written report are required. A maximum of four credit hours is allowed for BIOL internship.

BIOL 4701 Special Methods in Biology

Fall and Spring. Prerequisites: Admission to student teaching phase of the teacher education program and concurrent enrollment in SEED 4909. Intensive on-campus exploration of the principles of curriculum construction, teaching methods, use of community resources, and evaluation as related to teaching biology.

BIOL 4881-4 Advanced Topics in Biology

On demand. Prerequisites: an upper level science course and consent of the instructor. This course offers advanced instruction in an area of biological sciences that is not otherwise covered in the curriculum. The focus of the course will vary from offering to offering, thus the course may be taken more than once. Offered on demand. \$10 laboratory fee.

BIOL 4891 Seminar in Biology

Fall and Spring. Prerequisite: an upper level biology course and senior standing. Designed to integrate all aspects of biology by covering current topics in many fields of biology and to acquaint the student with fields of biology not covered in the general curriculum.

BIOL 4951-4 Undergraduate Research in Biology

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

BIOL 4991-4 Directed Research

Each semester. Open to biology majors with approval of department head and the individual instructor who will advise on research topic. Research may vary to fit the needs and interests of the student. Unless permission is granted by the department head, no more than two credit hours will be given in any semester for a particular research topic.

Business Administration

(Additional prerequisites for 3000- and 4000-level courses are listed in the College of Business section of this catalog.)

BUAD 1003 Introduction to Business Systems

This course cannot be taken for credit after completion of any upper division (3-4000 level) College of Business course. The purpose of "Introduction to Business Systems" is to orient students to the business disciplines and business expectations including professionalism and ethics. Topics examined include business fundamentals such as accounting, finance, management, marketing, information technology and a basic understanding of economic factors. The course also provides an overview of the College of Business programs, the College of Business core curriculum (including course requirements, student responsibilities, and study skills), and an overview of business career options.

BUAD 1023 Keyboarding

Instruction and supervised practice in basic keyboarding skills with emphasis on alphabetic and numeric keyboard, ten-key pad, and basic applications transferable to computer terminal keyboards. The purpose of the course is to prepare Business Education majors for teaching secondary education students how to use computer and typewriter keyboards. The course is required by Business Education majors, but may be taken by other majors as well. May not be taken for credit after successful completion of BUAD 2002.

BUAD 2003 Business Information Systems

Each semester. Prerequisite: Sophomore standing. An introduction to business information systems with emphasis on concepts and applications utilizing spreadsheets, word processing, and database management as productivity tools; provides basic rationale for using computers in generating and managing information necessary for the business decision-making process.

BUAD 2033 Legal Environment of Business

Each semester. Prerequisite: Sophomore standing. A survey of the basic framework of the American and international legal systems, including civil procedure, constitutional law, administrative regulation, and topics in business law, with particular emphasis on the ethical, sociocultural and political influences affecting such environments.

BUAD 2043 Principles of Word Processing

Prerequisite: BUAD 1023 or BUAD 2003 or COMS 1003. A course designed to develop technology skills using current software; application documents include letters, memos, reports, tables, desktop publishing, and graphics for business as well as personal use.

BUAD 2053 Business Statistics

Each semester. Prerequisites: COMS 1003 or BUAD 2003 and MATH 2243. An introduction to basic descriptive and inferential statistics and their application to business problems. Topics covered include frequency distributions, histograms, the mean, standard deviation, variance, covariance, and correlation coefficients for samples and populations, confidence intervals and hypothesis tests for means and proportions, analysis of variance, simple linear regression, chi-square, control charts for variables and attributes, and time-series analysis.

BUAD 2073 Principles of Real Estate

An orderly approach of study to prepare students for the Uniform License Examination. Topics covered include contracts, real estate financing ownership, brokerage, valuation, settlements, arithmetic review, forms of ownership, title transfer, mortgage instruments, deeds, leases, title closing, contract laws, real estate taxes, property descriptions, and other pertinent areas.

BUAD 3023 Business Communications

Each semester. Prerequisites: 6 hours of English Composition and COMS 1003 or BUAD 2003. Course includes principles of effective business communication using technology to generate documents including letters, memos, and reports; international, ethical, legal, and interpersonal topics are integrated throughout the course.

BUAD 3063 Commercial Law

Prerequisites: BUAD 2033. An in-depth analysis of the Uniform Commercial Code and its effect on the business environment. Course focuses on sales, negotiable instruments, secured transactions, and bankruptcy. Significant federal and state statutes affecting commerce also are explored.

BUAD 4001-3 Problems in Business Administration

On demand. Prerequisites: Senior standing and permission of department head. Individual exploration of significant topics and problems in business administration under the direction of an assigned faculty member. A report will be required.

BUAD 4073 Special Topics in Law

Prerequisite: BUAD 2033. Course offers an in-depth exploration of selected legal issues affecting business. The primary focus of the course will vary from offering to offering; thus the course may be taken more than once.

Chemistry

CHEM 1114 A Survey of Chemistry

Each semester. Prerequisite: a score of 19 or above on the mathematics section of the ACTE exam, or completion of MATH 0903, Intermediate Algebra, with a grade of "C" or better. A survey of selected topics in chemistry for life science majors. A brief introduction to fundamental concepts, atomic structure, chemical bonding, and periodic law as applied in the life sciences and allied areas. Lecture three hours, laboratory three hours. May not be taken for credit after completion of CHEM 2124 or 2134. \$10 laboratory fee.

CHEM(BIOL,GEOL) 2111 Environmental Seminar

(See CHEM 4111).

CHEM 2124 General Chemistry I

Each semester. Prerequisites: score of 21 or higher on the math portion of the ACTE; or MATH 1113 or equivalent; or a "C" or better in CHEM 1114; or approval of the instructor. The first of a two semester sequence designed for science and engineering majors. Topics include qualitative and quantitative, applied and theoretical analyses of the interactions of matter; atoms, molecules, ions, the mole concept, chemical equations, gases, solutions, intermolecular forces, thermochemistry, quantum theory, periodic law, ionic and covalent bonding, molecular geometry. Lecture three hours, laboratory three hours. \$10 laboratory fee.

CHEM 2134 General Chemistry II

Each semester. Prerequisite: completion of CHEM 2124 or equivalent. A continuation of CHEM 2124, encompassing chemical kinetics, equilibrium, acid/base systems, atmospheric chemistry, thermodynamics, electrochemistry, descriptive inorganic chemistry and nuclear chemistry. Lecture three hours, laboratory three hours. \$10 laboratory fee.

CHEM 2201 Chemistry Seminar

(See CHEM 4401).

CHEM 2204 Organic Physiological Chemistry

Spring semester. Prerequisites: CHEM 1114 or CHEM 2124. For students who desire only one semester of organic/physiologic chemistry, such as wildlife biology and various allied health programs. A brief introduction to organic and physiological chemistry. The structures, reactions and biological aspects of organic compounds will be stressed. Will not be counted for chemistry credit toward the ACS approved BS in chemistry. Lecture three hours, laboratory three hours. \$10 lab fee.

CHEM 2991-3 Special Problems in Chemistry

Permission of instructor. One to three credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor.

CHEM(BIOL,GEOL) 3111 Environmental Seminar

(See CHEM 4111).

CHEM 3245 Quantitative Analysis

Spring. Prerequisites: CHEM 2134. This is a lab intensive course, that focuses on a variety of experimental techniques that enable the chemist to characterize and quantify many types of samples. Lecture three hours, laboratory six hours. \$10 laboratory fee.

CHEM 3254 Fundamentals of Organic Chemistry

Fall, Spring. Prerequisites: CHEM 2134. An introduction to the chemistry of covalently bonded carbon. Special emphasis will be given to descriptive and structural aspects of Organic Chemistry. Lecture three hours, laboratory three hours. \$10 laboratory fee.

CHEM 3264 Mechanistic Organic Chemistry

Spring. Prerequisite: Completion of CHEM 3254 or equivalent. A continuation of CHEM 3254 with special emphasis on theory and mechanisms of organic reactions. Lecture three hours, laboratory three hours. \$10 laboratory fee.

CHEM 3301 Chemistry Seminar

(See CHEM 4401).

CHEM 3313 Environmental Chemistry

Spring. Prerequisite: Chemistry 3254. An examination of the chemistry of the environment including the origins, natural processes, and anthropogenic influences.

CHEM 3324 Physical Chemistry I

Fall. Prerequisites: CHEM 3245, PHYS 2024, or 2124, MATH 2924. Upper division chemistry course designed for chemistry, physical science, and engineering majors desiring a deeper understanding of the physical and mathematical processes of chemistry. Course content includes ideal and non-ideal gases, laws of thermodynamics, enthalpy, heat capacity, free energy, Maxwell's relations, chemical and phase equilibria, electrochemical equilibria, fugacities, activity coefficients, mixtures, colligative properties, surfaces. Lecture three hours, laboratory three hours. \$10 laboratory fee.

CHEM 3334 Physical Chemistry II

Spring. Prerequisite: CHEM 3324. Continuation of CHEM 3324 (Physical Chemistry I). Upper division chemistry course designed for chemistry, physical science and engineering majors desiring a deeper understanding of the physical and mathematical processes of chemistry. Course content includes chemical kinetics and reaction mechanisms, molecular collisions, transition state theory, quantum mechanics, electronic structure of atoms and diatomic molecules, molecular spectroscopy, solid-state chemistry. Lecture three hours, laboratory three hours. \$10 laboratory fee.

CHEM 3344 Principles of Biochemistry

Fall, Spring. Prerequisite: CHEM 3264 and BIOL 1014 or 1114. The chemistry of metabolism of carbohydrates, lipids, and proteins. Basic concepts of the biochemistry of DNA, vitamins, enzymes, biological oxidations, and bioenergetics with introduction to biochemical laboratory techniques. Lecture three hours, laboratory three hours. \$10 laboratory fee.

CHEM 3353 Fundamentals of Toxicology

On demand. Prerequisite CHEM 3254. An introduction to the science of poisons. Toxicological principles studied include structures, dose/response relationships, metabolism, mechanism of action, and gross effects of chemicals.

CHEM 3363 Metabolic Biochemistry

Prerequisites: CHEM 3343. The study of metabolism of carbohydrates, lipids, proteins, and nucleic acids, and the study of biological information flow in organisms. Metabolic pathways and genetic informational flow in plants and animals will be addressed. Lecture three hours.

CHEM 3423 Descriptive Inorganic Chemistry

Prerequisite: CHEM 3264. Basic descriptive inorganic chemistry dealing in a systematic way with the elements and the structures, properties and reactions of their inorganic compounds. Topics range from coordination chemistry to organometallic chemistry to bioinorganic chemistry. Three hours of lecture.

CHEM 3991-3 Special Problems in Chemistry

Permission of instructor. One to three credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor.

CHEM(BIOL,GEOL) 4111 Environmental Seminar

Spring. A seminar for students pursuing the environmental option of chemistry, biology, or geology and other students interested in environmental sciences.

CHEM 4401 Chemistry Seminar

Spring. Participants will prepare written reviews, present oral reports, and defend their reports. Emphasis will be on the use of the library and current chemical research.

CHEM 4414 Instrumental Analysis

Fall. Prerequisite: CHEM 3245. This course is designed for chemistry majors. It will focus on the understanding of the instrumental methods used in analytical chemistry. A variety of spectrometric, chromatographic, and electrometric techniques will be covered in the lecture and laboratory. Lecture three hours, laboratory three hours. \$10 laboratory fee.

CHEM 4422 Advanced Organic Chemistry

On demand. Prerequisite: CHEM 3264. An expansion and/or continuation of theoretical topics addressed in CHEM 3264.

CHEM 4424 Advanced Inorganic Chemistry

Spring. Prerequisite: CHEM 3324. CHEM 4424 is a senior level inorganic chemistry course. The course gives an overview of some of the many advanced areas of study in inorganic chemistry including atomic and molecular structure, acid-base chemistry, symmetry and group theory, coordination chemistry and organometallic chemistry. Lecture three hours, laboratory three hours. \$10 laboratory fee.

CHEM 4432-4 Advanced Topics in Chemistry

On demand. Prerequisite: Permission of instructor. Various advanced topics in any specialty area of chemistry, e.g., polymers, coordination chemistry, and nuclear chemistry.

CHEM 4951-4 Undergraduate Research in Chemistry

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

CHEM 4991-4 Special Problems in Chemistry

Permission of instructor. One to four credits, depending on the nature and extent of the problem. This course is designed to encourage creative, independent scientific activity on the part of advanced students. Problems will be designed to fit the future aspirations of individual students and will be supervised by a faculty mentor.

Chinese

CHIN 1014 Beginning Chinese I

Emphasis on conversation; introduction to basic grammar, reading, writing, and culture.

CHIN 1024 Beginning Chinese II

Continued emphasis on conversation and fundamental language skills.

CHIN 2014 Intermediate Chinese I

Prerequisite: Beginning Chinese II (CHIN 1024) or equivalent. Instruction designed to develop communication skills and knowledge of grammar, reading, writing, and culture.

CHIN 2024 Intermediate Chinese II

Prerequisite: Intermediate Chinese I (CHIN 2014) or equivalent. Instruction designed to enhance communication skills and knowledge of grammar, reading, writing, and culture.

College Student Personnel

CSP 1013 Principles of Collegiate Success

Prerequisite: Open to undergraduate students with no more than 30 earned semester hours or by permission of the Vice President for Academic Affairs. This course is designed specifically to enhance student adjustment to college life, student adaptation to the higher education learning experience, student comprehension of personal responsibility, and student advancement regarding career pathways.

Computer and Information Science

COMS 1003 Introduction to Computer Based Systems

Provides students with both computer concepts and hands-on applications. Although little or no prior computer experience is required for this course, keyboarding proficiency is assumed. Topics include PC basics, file maintenance, and hardware and software components. Students will gain experience in the use of Windows, e-mail, the Internet, word processing, spreadsheets, databases, and presentation packages. The integration of software packages will also be covered. This course may not be taken for credit after completion of COMS 2003 or BUAD 2003. Credit by examination is offered to students who have notable experience with computers and MS Office applications. Information regarding this examination can be found at cs.atu.edu/coms1003.

COMS 1103 FORTRAN Programming

Prerequisite: MATH 1113 or equivalent. An introduction to programming using the FORTRAN language with emphasis on numerical computing, including the use of scientific subroutine libraries.

COMS 1203 Programming in BASIC

An introduction to programming using BASIC and/or Visual Basic.

COMS 1303 Computer Applications for Technical Majors

Corequisite: MATH 1113 or equivalent. The purpose of this course is to give the students in engineering, mathematics, chemistry, and other technical disciplines the prerequisite computer skills necessary to make effective use of the computer in their major degree programs where computer applications have been integrated into the course of study.

COMS 1333 Web Publishing I

Prerequisite: COMS 1003 or BUAD 2003. This course focuses on how to develop web pages for display on the World Wide Web. Topics covered include markup languages, style sheets, links, images, multimedia, tables, forms, design issues, and other topics as appropriate. Students will learn how to publish a web site to a server and maintain the site.

COMS 1403 Orientation to Computing, Information, and Technology

Corequisite: MATH 1113 and COMS 1411. (Required of all students who have declared a major in computer science, information systems, or information technology). An introduction to the professions of computer science, information systems, and information technology. Topics include ethics, professionalism, and opportunities within the three fields as well as an overview of hardware, software, technology, and information systems concepts and terms.

COMS 1411 Computer and Information Science Lab

Corequisite: COMS 1403. An introduction to the computing resources of the department and the university.

COMS 2003 Microcomputer Applications

Prerequisite: COMS 1003 or BUAD 2003. This course provides hands-on experience with several software applications. Topics include intermediate and advanced word processing and desktop publishing features; spreadsheet design, formulas, and charts; database design principles and implementation; presentation design and techniques; and integration among these applications. Students will be required to apply each package on a semester project relation to their major.

COMS 2104 Foundations of Computer Programming I

Prerequisite: MATH 1113, and either COMS 1403 and 1411 or consent of instructor. An introduction to structured programming using C++. This is the beginning programming course for students majoring in computer science, information systems, and information technology. Programming principles covered in lecture are practiced in lab. Major topics include sequential, selection, and iterative control structures, functions, parameter passing, and file processing. Arrays are introduced as a structured data type.

COMS 2163 Scripting Languages

Prerequisite: Minimum of 3 hour programming course. This course introduces the student to script writing in several languages. The primary categories of scripts will be UNIX shell, text processing, and Perl. CGI Scripts, using Perl, will be introduced.

COMS 2203 Foundations of Computer Programming II

Prerequisite: MATH 1113 and completion of COMS 2104 with a grade equal to or greater than a C. Topics include multi-dimensional arrays, functions, string processing, classes, and records. Students are introduced to object-oriented programming using C++.

COMS 2213 Data Structures

Prerequisite: COMS 2203, and COMS 2903. This course involves a study of abstract data structures and the implementation of these abstract concepts as computer algorithms.

COMS 2223 Computer Organization and Programming

Prerequisite: COMS 2203 and ELEG 2134. This course covers computer architecture and machine-level programming in assembly language. Considerable practical experience will be gained through programming projects. Topics include internal data representation and manipulation, as well as physical, and logical level input-output macros.

COMS 2233 Introduction to Databases

Prerequisite: COMS 1003 or 1403. This course develops a detailed understanding of a database software package developed for microcomputer applications. Topics include how to design, implement, and access a personal database. Entity relationship diagrams are emphasized in design. The use of macros, data conversion operations, linking, and complex selection operations are used in implementation. Advanced report generation mechanisms are covered along with custom-designed menus and user interfaces.

COMS 2333 Web Publishing II

Prerequisite: COMS 1333 or consent of instructor. This course is a continuation of COMS 1333. Students are introduced to multimedia design concepts and software. Multimedia applications and design tools are used to create and maintain multimedia products such as dynamic graphics, animation, interactive websites, and video.

COMS 2700 Networking and Architecture Laboratory

Corequisite: COMS 2703. Laboratory exercises repairing and networking computers.

COMS 2703 Computer Networks and Architecture

Prerequisite: COMS 1411 and COMS 1403. Corequisite: COMS 2700. This course covers how to install and administer a local area network and connect it to the Internet. Topics include network architecture, hardware, and software, along with popular protocols for establishing connectivity for sharing resources such as printers and files. Participation in a designated lab outside of the regularly scheduled meeting time is required.

COMS 2713 Survey of Operating Systems

Prerequisite: COMS 1411; COMS 1003 or COMS 1403. Several Operating Systems (such as Unix, Microsoft, AS/400) will be examined with regard to the user's view of the system. This view includes the types of files supported, the kinds of operations that can be performed on files (from the shell and from programs), the mechanisms for starting and controlling processes (i.e. "running programs"), some basic utility programs that a beginning or intermediate level administrator would need to use.

COMS 2733 Introduction to Computer Forensics and Security

Prerequisites: COMS 2703. Corequisite: COMS 2713. An introduction to the fundamentals of computer forensic technology. The course emphasizes techniques for identifying and minimizing the threats to, and vulnerabilities of computer systems. These techniques include methods and tools for tracking suspicious activity, for recovering and preserving digital media, and for doing post-mortem analysis.

COMS 2803 Programming in C

Corequisite: MATH 1113. Not for majors. This course involves the design, coding, debugging, and implementation of programs using the C language. The UNIX operating system is introduced. May not be taken for credit after the successful completion of COMS 2104.

COMS 2853 Business Application Programming using COBOL

Prerequisites: COMS 2203. This course involves the analysis, design, development, testing, implementation, and maintenance of business application programs using the COBOL language. Topics include traditional data file organization, access, and processing methodologies. Additional topics include data validation, tables, sorting, searching, screen I/O, and report-based output. Programs are developed in PC and IBM mid-range computing environments.

COMS 2903 Discrete Structures for Technical Majors

Prerequisite: MATH 1113. Fundamental mathematical concepts related to computer science, information systems, and information technology, including logic and proof techniques; sets, sequences, relations, and functions; combinatorics; algebraic structures and Boolean algebra; trees and graphs.

COMS 2981-4 Special Topics

Prerequisite: Permission of the department. This course will be offered on an "as-needed" basis to cover those topics and subject areas in computing that are emerging in a technological sense, but that do not yet warrant the addition of a new course to the curriculum. This course may be repeated for credit if course content differs.

COMS 3053 Implications of Technology on Society

Prerequisite: Junior standing. This course explores social, legal, philosophical, political, economic, and constitutional issues related to information technology. The focus will be on those issues faced as members of a complex technological society and as professionals in a technology-related field. Extensive research on current issues is expected.

COMS 3163 Web Programming

Prerequisite: COMS 2163. This course expands on the concept of CGI programming introduced in COMS 2163. Topics include features of web forms and CGI processing via a scripting language. Basic database interaction and Server-Side Includes (SSI), client-side implementation of pop-up windows, form validation, cookies, security, and other concepts will also be discussed.

COMS 3213 Advanced Data Structures and Algorithm Design

Prerequisite: COMS 2213. Concepts, implementation, and application of B-trees, AVL trees, hashing, graphs, and other abstract data structures will be studied.

COMS 3333 Implementation of e-Commerce

Prerequisite: COMS 2333 and 3163. This course covers technical issues involved in developing online stores. The primary emphasis of this course will be the design, implementation, and configuration of the "shopping carts" used for online business. Particular attention will be paid to areas of security, privacy, and protection.

COMS 3503 Visual Programming

Prerequisite: COMS 2003 (or equivalent) and COMS 2213. This course covers the design and development of event-driven programs using an object-oriented visual programming language such as Visual Basic.

COMS 3513 Administering and Using the IBM Platform

Prerequisite: COMS 2104 or consent of instructor. This course is an introduction to the operations of the IBM midrange computer system. Topics include architecture, system security, user interface, and work management. Coverage will also extend to applications and programming using an introduction to DB2 and RPG.

COMS 3523 Human Factors in Information Technology

Prerequisite: Junior standing in a computing major or instructor consent. A study of the major factors involved in Human-Computer Interaction. A system-oriented, multi-disciplinary approach to understanding the human considerations in the design, testing, implementation, and administration of computer-based systems and information technology.

COMS 3603 Principles of Management Science

Prerequisite: BUAD 2053 and junior standing. An introduction to management science analytical techniques, including such topics as the simplex method of linear programming, dual problem and sensitivity analysis, and integer programming. Emphasis is placed on the application of these methods using case studies and examples from the area of finance, marketing, and production. Applicable management science software will be used.

COMS 3703 Operating Systems

Prerequisite: COMS 2213 and 2223. This course explores the fundamental concepts upon which modern operating systems are based. Topics include CPU, memory, file and device management, concurrent processes, protection mechanisms, and distributed systems. Several important algorithms will be implemented by the student.

COMS 3803 Computer Applications in Accounting and Business

Prerequisite: COMS 2003 or equivalent, ACCT 2013, Junior standing. Topics to be covered include intermediate and advanced microcomputer applications in business.

COMS 3903 Systems Software and Architecture

Prerequisite: COMS 2703 and junior standing. This course covers the implementation of production operating systems, the fundamentals of digital logic, and machine architecture. This course does not count as credit toward a degree in Computer Science.

COMS 4013 Quality Management in Information Technology

Prerequisite: BUAD 2053 and COMS 4203. The study of quality management and quality assurance with regard to the analysis, design, development, and implementation of information systems and information technology. Topics include measurement techniques and standards, including ISO 9001 and other associated best practices regarding process management and process improvement.

COMS 4033 Systems Analysis and Design I

Prerequisite: COMS 4203. The application of concepts, tools, procedures, and techniques involved in the development of information systems. Emphasis is placed on the systems approach to problem solving, user involvement, the management of quality, project control, and teamwork.

COMS 4043 Systems Analysis and Design II

Prerequisite: COMS 4033 and either COMS 4133, 4163, or 4313. A continuation of COMS 4033, with emphasis on the application of the theory and techniques covered in the previous course. Students will research, analyze, design, implement, test and document a complete system. Students will complete and present their final system project as a team.

COMS 4053 Information Systems Resource Management

Prerequisite: Junior standing in information systems, information technology, or computer science. A study of the principles and concepts involved in the management of organizational maintenance of all information resources, including hardware, software, and personnel. Includes coverage of departmental functions within computer services and information systems. Additional topics include legal, ethical, and professional issues, quality management, and the strategic impact of information systems.

COMS 4063 IT Project Administration

Prerequisite: Junior standing in information technology, information systems, or computer science. This course provides a thorough introduction to the art and science of Project Management, as applied in the domain of information technology. Theories, best practices, and tools of project management are studied in relation to the completion of a successful project life cycle.

COMS 4103 Organization of Programming Languages

Prerequisite: COMS 2213 and COMS 2223. This course emphasizes the comparative structures and capabilities of several programming languages. Major emphasis will be placed on language constructs and the run-time behavior of programs.

COMS 4133 Application Program Development

Prerequisite: COMS 2213 and COMS 2853. Object-oriented application development. Topics include OO Programming, three-tier design, and model-driven development. The course involves a major individual programming project. Students will develop and present their own large-scale application program.

COMS 4163 Personal Software Engineering

Prerequisite: COMS 3213. Formal methods for software specification. Program analysis, verification, and testing. Principles of software design. Object-oriented program implementation. Personal software process and product measurements. Program documentation. Software tools. Each student will implement a large application.

COMS 4203 Database Concepts

Prerequisite: COMS 2003, COMS 2203 and COMS 2903. Problems associated with common data processing systems, reasons for database system development; objectives such as data, device, user, and program independence; hierarchical, network, and relational models; data structures supporting database systems; operational considerations such as performance, integrity, security, concurrency, and reorganization; characteristics of existing database systems.

COMS 4213 Database Administration

Prerequisites: COMS 4203. This course develops a comprehensive foundation in the planning, implementation and execution of database management policies and procedures. Topics include installation, storage and replication implementation, security management, indexing and performance tuning, and backup and recovery.

COMS 4253 Computer Graphics

Prerequisite: COMS 2213 and MATH 4003. Developing algorithms to do line drawing, two and three dimensional displays, clipping and windowing, and hidden line removal. Other areas will include graphic I/O devices, display processors, and data structures for graphics.

COMS 4303 Client/Server Systems

Prerequisite: COMS 2213 and COMS 4203. This course provides in-depth coverage of client/server concepts. The student will use object-oriented visual programming tools and SQL in the construction of client/server programs. Emphasis will be placed on the proper design of server databases and on programming techniques used in event-driven environments.

COMS 4313 Web Server Administration

Prerequisites: COMS 2333 and COMS 2733. The tools and techniques needed to administer a web server. Installation, configuration, and administration of a variety of web servers on different platforms.

COMS 4353 Artificial Intelligence

Prerequisite: COMS 2213 and junior standing. General concepts, wide overview of AI history, and development and future of AI. Implementation of AI techniques using the LISP and or PROLOG languages. Additional topics include pattern recognition, natural language processing, learning process, and robotics.

COMS 4403 Compiler Design

Prerequisite: COMS 2223, 3213 and 4103. This course covers syntax translation, grammars and parsing, symbol tables, data representation, translating control structures, translating procedures and functions, processing expressions and data structures, and multipass translation. Students will design a computer language and implement the compiler.

COMS 4603 System Programming

Prerequisite: COMS 2213 and either COMS 3703 or COMS 3903. This course is intended to give the student practical experience in the implementation, modification, and maintenance of system software.

COMS 4700 Data Communications and Networking Lab

Corequisite: COMS 4703. Students will complete network lab exercises in support of COMS 4703.

COMS 4703 Data Communications and Networks

Prerequisite: COMS 2703, COMS 2903; COMS 2223 or COMS 3903. Corequisite: COMS 4700. Basic elements and functional aspects of the hardware and software required to establish and control data communications in a stand-alone or network environment. Topics include communication protocols, media, network topologies, and system support software. Participation in a designated lab outside of the regularly scheduled meeting time is required.

COMS 4710 Heterogeneous Networks Lab

Corequisite: COMS 4713. Students will complete network lab exercises in support of COMS 4713.

COMS 4713 Heterogeneous Networks

Prerequisite: COMS 4703. Corequisite: COMS 4710. The student will design, develop, implement and manage numerous heterogeneous networking operating system environments. Required policies and procedures are examined and developed. Networking tools required for the development of a seamless heterogeneous networking environment are studied and applied.

COMS 4803 System Simulation

Prerequisite: COMS 2213 and 3 hours of Statistics. Three-hour programming course and junior/senior classification. An introduction to simulation methodology as it applies to the analysis and synthesis of systems. Design of simulation experiments and the analysis of data generated therefrom. Random sampling of the Monte Carlo method are used to develop computer procedures for simulated sampling. A broad range of applications is discussed.

COMS 4951-4 Undergraduate Research in Computer and Information Science

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

COMS 4981-3 Seminar in Computer and Information Science

Prerequisite: Permission of department. A directed seminar in an area of computer and information science. Seminars will focus on topics relating to emerging technologies which are beyond the scope of other computer and information science courses. This course may be repeated for credit if course content differs.

COMS 4991-4 Special Problems in Computer and Information Science

Prerequisite: Permission of department. This course will allow the student to work individually or as part of a small team to study and design practical computerized systems in order to solve problems of particular interest. This course may be used to offer a variety of subjects that strengthen the student's knowledge in areas not covered by other course offerings.

Criminal Justice

CJ (SOC) 2003 Introduction to Criminal Justice

An overview of the criminal justice system and the workings of each component. Topics include the history, structure, and functions of law enforcement, judicial and correctional organizations, their interrelationship and effectiveness, and the future trends in each.

CJ 2013 Introduction to Security

An introduction to and analysis of the private security section and its relationship to the criminal justice system. Topics will include the historical development of security, its functions, limitations and concepts, technology and applications to the present and the future.

CJ(SOC) 2033 Social Problems

Prerequisite: SOC 1003. A sociological analysis of contemporary social problems including inequalities, deviance, population changes, and troubled institutions.

CJ(SOC) 2043 Crime and Delinquency

Prerequisite: SOC 1003 or CJ(SOC) 2003. A study of the major areas of crime and delinquency; theories of crime, the nature of criminal behavior and the components of the criminal justice system. Topics include: crime statistics, criminology research, theories of crime and delinquency, criminal typologies and operations of the criminal justice system.

CJ(POLS) 3023 Judicial Process

The structure and operations of the state and national court systems. Emphasis is upon the role of the criminal courts in the political system and the consequences of judicial policy making.

CJ(PSY) 3033 The Criminal Mind

Prerequisite: PSY 2003 and CJ(SOC) 2003 or (CJ)SOC 2043. The course familiarizes students with various models, theories, and research regarding criminality from a psychological perspective. Genetic, constitutional, and biological factors will be emphasized and some practical applications to dealing with criminals will be considered.

CJ(RS) 3063 Probation and Parole

Prerequisite: CJ(SOC) 2003 or CJ(SOC) 2043. A survey of the philosophy, origin, development, rise and evaluation of probation and parole as correctional techniques.

CJ(SOC) 3083 Social Deviance

Prerequisite: SOC 1003 or CJ(SOC) 2003. AN introduction to the sociological and criminological study of human deviance. Various theories of deviance will be examined and applied to real life examples.

CJ(SOC) 3103 The Juvenile Justice System

Prerequisite: CJ(SOC) 2003 or permission of instructor. An in-depth look at the juvenile justice system including the structure, statuses and roles as well as current issues, problems, and trends.

CJ(SOC) 3153 Prison and Corrections

Prerequisite: SOC 1003 and SOC(CJ) 2033. An introduction to and analysis of contemporary American corrections. Emphasis will be on current and past correctional philosophy, traditional and modern correctional facilities, correctional personnel and offenders, new approaches in corrections, and the relationship of corrections to the criminal justice field.

CJ 4023 Law and the Legal System

A comprehensive study of judicial process and behavior in criminal and civil law. May not be taken for credit after completion of POLS 5023 or equivalent.

CJ 4053 Criminal Law and the Constitution

A survey of the procedures and issues associated with American criminal justice as viewed from a Constitutional perspective.

CJ(SOC) 4206 The Law in Action

Prerequisite: SOC/CJ 2043, 9 hours of Criminal Justice coursework, senior classification, and instructor permission. Offered only in the summer. An examination of sociological theories of law and main currents of legal philosophy is followed by participant observation of actual community legal agencies, including police, courts, and others as available. Requires insurance fee.

CJ 4951-4 Undergraduate Research in Criminal Justice

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

CJ 4991-4 Special Problems in Criminal Justice
Prerequisite: Prior approval of instructor and department. Content is to be determined by faculty-student conference and based on student background and interest.

Culinary

CUL (HA) 1013 Sanitation Safety

This course provides knowledge of food safety, potable water, bioterrorism and risk management particularly in the areas of food service and storage. The student will gain knowledge on safe food handling from; receiving and storage through preparing and serving food. This course will also analyze ethical considerations with regards to food and water safety and food service. ServSafe certification from the NRAEF will result upon successful completion of standardized exam.

CUL (HA) 1923 Introduction to Food and Beverage Management

Prerequisite CUL (HA) 1013. This course introduces the practical skills and knowledge necessary for the effective management of food and beverage operations encompassing the historical timeline of food and beverage, non-alcoholic beverages, the identification of meats, fishes, fruits, vegetables, dairy products and proteins. This course also introduces the front-of-the-house essentials for food and beverage operations encompassing glassware, service ware and other front-of-the-house equipment.

CUL (HA) 2003 Cost Controls

This course will study the role of cost control management on overall profitability of hospitality entities. Basic principles of purchasing food, beverage, and non-food items with regards to maintaining an operation's competitive advantage within the industry will be covered.

CUL (HA) 2023 Hospitality Supervision and Leadership

This course provides comprehensive coverage of the principles, theories, human-relations techniques, leadership styles, and decision-making skills that are required to manage a team to profitable results in the foodservice and lodging industries.

CUL (HA) 2053 Work Experience

Prerequisites: HA major, minor and/or culinary students. Sophomore standing or permission of instructor. Placement in selected hospitality settings as a student worker under professional guidance of both agency and faculty. Students are given the opportunity to take part in meaningful work experiences in actual work situations and managerial observation. Minimum of 200 clock hours of work experience.

CUL (HA) 2063 Guest Service Management

Prerequisite HA 1063. The analysis and development of guest services management skills including leadership behavior, motivation, communication, training, staffing, etiquette, and professional service. Lecture two hours, lab minimum of three hours depending on the special event requirements. \$100 lab fee which helps to cover your meal costs and/or travel.

CUL (HA) 2813 Basic Human Nutrition in Hospitality Administration

Study of the relationship between nutrition and health as a basis for food choices of all ages; the application of nutrient functions in human life processes and cycles; how balanced eating promotes healthy lifestyles. Current concepts and controversies are highlighted.

CUL 2903 Introduction to Garde Manger

Prerequisite CUL(HA) 1013. This course is an introduction to three main areas of the cold kitchen: reception foods, plated appetizer and buffet arrangements. Students will learn to prepare canapés, hot and cold hors d'oeuvre, appetizers, forcemeats, pates, galantine, terrines, roulades, salads and sausages. Curing and smoking techniques for meat, seafood and poultry items will be covered. Cheese identification, production, presentation and service will be studied. The student will also explore contemporary styles of presenting foods and buffet preparation. Lecture 1 hour, lab 3 hour minimum. \$100 lab fee required. Additional Costs: professional uniforms and knives are required and are to be considered additional out-of-pocket expenses to the student.

CUL (HA) 2913 Principles of Food Preparations

Prerequisites: CUL(HA)1923. Corequisites: CUL(HA) 2813 and CHEM 1114. Upon completion of this course the student should be able to demonstrate skills in basic cooking techniques and methods, recipe conversion, and professional food preparation and handling. Additionally, the student should be able to recognize and safely operate common foodservice equipment used in commercial kitchens and demonstrate proficient culinary knife skills. This course is 2 hours lecture and a 4 hour lab depending upon special event requirement(s). \$100 lab fee required. Additional costs: professional uniforms and knives are required and are to be considered additional out-of-pocket expenses to the student.

CUL 2923 Stock, Sauces, and Soups

Corequisite: CUL(HA) 2913. This course is an introduction to the basic stocks, sauces and soups and is based on the classical model by Escoffier. Fundamental elements covered include the entire classic French repertoire of hot sauces; the five leading sauces; béchamel, velouté, espagnole (also known as brown), tomato and hollandaise as well as small compound sauces, cold sauces, compound butter, court bouillon and marinades, roux and other thickening agents. Clear soups, thick soups and specialty soups will be introduced and expanded upon. Lecture 1 hour, lab 3 hour minimum. \$100 lab fee required. Additional costs: professional uniforms and knives are required and are to be considered additional out-of-pocket expenses to the students.

CUL 2933 Advanced Food Preparations

Prerequisite: CUL(HA) 2913. This course reviews basic cooking methods and techniques and refines the understanding of/and application of culinary terminology, proper care and use of tools and equipment as well as safety and sanitation techniques. Students will gain an advanced knowledge of the correct procedures for the following methods: poach, fry, bake, broil, boil, roast, stew, sauté, grill and steam. Students will gain an advanced knowledge of vegetable, pasta, grain, and potato cookery as well as preparation of game, fish, shellfish, lamb, and veal. Lecture 1 hour, lab 3 hour minimum. \$100 lab fee required. Additional costs: professional uniforms and knives are required and are to be considered additional out-of-pocket expenses to the student.

CUL 2943 Introduction to Baking & Pastry

Prerequisite: CHEM 1114. This course introduces basic methods used in baking and pastry. Methods introduced include, creaming, thickening for custards, pre-cooked, foaming, cut-in/rubbing, straight dough, blending and lamination. This course will focus on the range of baking ingredients in original, modified, and prepared forms as well as the theory and operation of large and small equipment used in bakeries and pastry shops. Through preparing, tasting and testing, students will learn to identify and select quality grains, dairy products, baking spices, flours, chocolates, fats, and oils used in baking. Lecture 1 hour, lab 3 hour minimum. \$100 lab fee required. Additional costs: professional uniforms and knives are required and are to be considered additional out-of-pocket expenses to the student.

CUL 2996 Externship

Fall, spring and summer semesters. Culinary majors only. Prerequisites: Sophomore standing, current certifications in CPR, Standard and Advanced First Aid, consent of the department head and completion of all other courses applicable to degree. This course provides industry experience for students in cooperating businesses, agencies and organizations under professional guidance of both agency supervisor and faculty. While enrolled in this course, a student must work a minimum of 600 hours and a minimum of 15 weeks in an approved position in the hospitality industry. Student cannot document more than 40 hours of work experience per week. No prior experience credit will be given. A written report is required within two weeks of externship completion. \$100 supervisor travel fee is required.

Driver Education**DE 4543 Driver and Traffic Education II**

Prerequisites: A valid driver's license, admission to teacher education program, a driving record free from frequent and unusual violations. This course is designed to prepare teachers to organize and teach driver education and traffic safety programs in secondary schools. It includes administration, supervision of personnel, design of facilities, and a research project. May not be repeated for credit as DE 5543 or equivalent.

DE 4613 Driver and Traffic Education I

Prerequisites: A valid driver's license, admission to teacher education program, and a driving record free from frequent and unusual violations. This course is designed to prepare teachers to organize and teach driver education and traffic safety programs in secondary schools. This course provides a survey of materials and methods of instruction plus evaluation of textbooks and in-car training of a student driver. Two hour lecture, two hours laboratory. May not be repeated for credit as DE 5613 or equivalent.

Early Childhood Education Associate Degree Program**ECE 2112 Basic Child Growth and Development I**

Prerequisite: Score of 75 or above on the writing portion of the COMPASS or 19 or above on the English portion of the ACTE. A study of the developmental principles of the developmental stages of the child from birth to age eight. Involves both observation and lecture.

ECE 2212 Basic Child Growth and Development II

Prerequisite: ECE 2112. A study of the developmental principles of the developmental stages of the children from age nine to eighteen. Involves both observation and lecture.

ECE 2312 Foundations and Theories in Early Childhood Education

Prerequisite: Score of 75 or above on the writing portion of the COMPASS or 19 or above on the English portion of the ACTE. An introduction to the profession including historical and social foundations, awareness of value issues, ethical and legal issues, staff relations, and the importance of becoming an advocate for children and families.

ECE 2513 Curriculum for Early Childhood Education

Prerequisites: ECE 2112 and ECE 2312. A study and application in the field of the theoretical base for early learning. Covers curriculum for young children based on research and theory.

ECE 2613 Methods and Materials Using Developmentally Appropriate Practices and Activities for Young Children

Prerequisites: ECE 2112 and 2312. A combination of classroom and field-based experiences stressing developmentally appropriate techniques and materials fostering successful development and learning in young children.

ECE 2991-9 Practicum in Early Childhood Education

Prerequisites: Completion of 12 hours of ECE courses taken for meeting assessment requirements for the Child Development Associate credential. Variable credit available for documented early childhood training related to the principles and procedures which support the development and operation of an effective early childhood education program. Credit may also be awarded for portfolio development for the Child Development Associate assessment. Equivalencies for awarding credit will be determined by the advisor in accordance with guidelines of the National Association for the Education of Young Children (NAEYC). Additional coursework approved by the advisor may be applied toward any balance of credit needed to complete the nine hours.

Early Childhood Education Bachelor Degree Program**ECED 2001 Introduction to Early Childhood Education**

Must be taken concurrently with ECED 2002. This course studies the social, historical, and philosophical foundations in American Education. Basic technology skills including the portfolio will be introduced.

ECED 2002 Field-Based Experience Seminar in Early Childhood

Must be taken concurrently with ECED 2001. This course provides an opportunity for prospective education majors to participate in guided classroom observation with time for reflection and discussion.

ECED 3023 Foundations of Early Childhood Education

Must be taken concurrently with ECED 3033. An introduction to the field of early childhood education, including a history of the movement, influencing concepts and theories, and relevant issues.

ECED 3033 Child Development

Must be taken concurrently with ECED 3023. A study of the physical, cognitive, and psychosocial development of the individual beginning with the prenatal period and continuing through early adolescence. This course includes an on-site field experience in settings for young children.

ECED 3043 Developmentally Appropriate Practice

Prerequisite: ECED 3023 and ECED 3033 and admission to Stage II. Corequisite: ECED 3053. A study of developmentally appropriate practice for young children, birth through age 9. This exploration is an integrated curricular study of appropriate early childhood curriculum, materials, environments, assessments, expectations, instructional strategies, and considerations for early childhood educators. Appropriate field observations and experiences are an integral part of this course, and will be integrated with course content.

ECED 3053 Children and Families in a Diverse Society

Prerequisite: ECED 3023 and ECED 3033 and admission to Stage II. Corequisite: ECED 3043. A study of the characteristics of young children with developmental disabilities in the contexts of family theory and intervention. Particular emphasis will be placed on how these characteristics impact the child's family and educational needs.

ECED 3113 Integrated Curriculum I (3-5 years)

Prerequisites: ECED 3043 and ECED 3053 and admission to Stage II. Corequisites: ECED 3122, ECED 3162, ECED 3172, ECED 3183, ECED 3192. In this course, pre-service teachers build a working knowledge of curriculum strategies and techniques on which to base wise curriculum decision making for children ages 3-5. This course is connected to the ECED 3122 Practicum.

ECED 3122 Practicum I

Prerequisite: ECED 3043 and ECED 3053 and admission to Stage II. Corequisites: ECED 3113, ECED 3162, ECED 3172, ECED 3183, ECED 3192. Practicum I is designed to provide pre-service teachers with field-based experiences for children age 3-5 years.

ECED 3162 Diagnosis and Assessment of Young Children I (3-5 years)

Prerequisite: ECED 3043 and ECED 3053 and admission to Stage II. Corequisite: ECED 3113, ECED 3122, ECED 3172, ECED 3183, ECED 3192. A study of observational and developmentally appropriate tools and methods of collecting data for decision making. Emphasis is on qualitative assessment techniques that are specific to 3-5 year-old children. This course is connected to the ECED 3122 Practicum.

ECED 3172 Guiding Young Children I (3-5 years)

Prerequisite: ECED 3043 and ECED 3053 and admission to Stage II. Corequisites: ECED 3113, ECED 3122, ECED 3162, ECED 3183, ECED 3192. Emphasis is placed on the guidance and management, individually and in groups, of young children ages 3-5 years. The course focuses on developmentally appropriate practices in early childhood settings. Creation of learning environments that foster social competence, build self-esteem in young children, and assist them in the exploration of ways to independently solve problems and gain self-control are emphasized. This course is connected to the ECED 3122 Practicum.

ECED 3183 Language and Literacy I (3-5 years)

Prerequisite: ECED 3043 and ECED 3053 and admission to Stage II. Corequisites: ECED 3113, ECED 3122, ECED 3162, ECED 3172, ECED 3192. A study of teaching strategies and support systems for encouraging the various areas of literacy in the 3-5 year-old child. This course is connected to the ECED 3122 Practicum.

ECED 3192 Children's Literature I (3-5 years)

Prerequisite: ECED 3043 and ECED 3053 and admission to Stage II. Corequisites: ECED 3113, ECED 3122, ECED 3162, ECED 3172, ECED 3183. Study of sources and types of reading materials available for 3-5 year old children and ways to use them to enhance learning. This course is connected to the ECED 3122 Practicum.

ECED 3213 Integrated Curriculum II (6-9 years)

Prerequisite: ECED 3113 and admission to Stage II. Corequisites: ECED 3222, ECED 3262, ECED 3272, ECED 3283, ECED 3292. ECED 3213 builds on the concepts presented in ECED 3113 and emphasizes developmentally appropriate curriculum for children ages 6-9; mandated curriculum; and contemporary issues related to curriculum. This course is connected to the ECED 3222 Practicum.

ECED 3222 Practicum II

Prerequisite: ECED 3122 and admission to Stage II. Corequisites: ECED 3213, ECED 3262, ECED 3272, ECED 3283, ECED 3292. Practicum II is designed to provide pre-service teachers with field-based experiences for children age 6-9 years.

ECED 3262 Diagnosis and Assessment of Young Children II (6-9 years)

Prerequisite: ECED 3162 and admission to Stage II. Corequisite: ECED 3213, ECED 3222, ECED 3272, ECED 3283, ECED 3292. A study of fundamental observation, assessment, and evaluation concepts and tools. Emphasis on both qualitative and quantitative methods of measuring and reporting student progress and learning. Designed to give the beginning teacher a background in the collection and interpretation of data with the goal of making valid data-driven decisions. This course is connected to the ECED 3222 Practicum.

ECED 3272 Guiding Young Children II (6-9 years)

Prerequisite: ECED 3172 and admission to Stage II. Corequisites: ECED 3213, ECED 3222, ECED 3262, ECED 3283, ECED 3292. Emphasis is on the guidance and management, individually and in groups, of primary-aged children, 6-9 years. The course focuses on developmentally appropriate practices in multi-cultural school settings that encourage children to become self-regulated learners. Creation of a context for positive discipline and a guidance approach for an encouraging classroom are explored. This course is connected to the ECED 3222 Practicum.

ECED 3283 Language and Literacy II (6-9 years)

Prerequisite: ECED 3183 and admission to Stage II. Corequisites: ECED 3213, ECED 3222, ECED 3262, ECED 3272, ECED 3292. A study of teaching strategies and support systems for encouraging the various areas of literacy in the 6-9 year-old child. This course is connected to the ECED 3222 Practicum.

ECED 3292 Children's Literature II (6-9 years)

Prerequisite: ECED 3192 and admission to Stage II. Corequisites: ECED 3213, ECED 3222, ECED 3262, ECED 3272, ECED 3283. Study of sources and types of reading materials available for 6-9 year old children and ways to use them to enhance learning. This course is connected to the ECED 3222 Practicum.

ECED 4915 Early Childhood Education Internship

Prerequisite: Admission to Internship. (Fifteen hour course.) An intensive field experience and campus seminar class which culminates the early childhood program. Students will spend time in early childhood environments and in campus seminars applying their knowledge and skills in reflective decision making with children and families. \$100 fee.

Economics

(Additional prerequisites for 3000- and 4000-level courses are listed in the College of Business section of this catalog.)

ECON 2003 Principles of Economics I

Each semester. Macroeconomic analysis of output, income, employment, price level, and business fluctuations, including the monetary system, fiscal and monetary policy, and international economics.

ECON 2013 Principles of Economics II

Each semester. Prerequisite: ECON 2003. Microeconomic analysis of consumer and producer behavior. Includes theory of production and cost, the effects of market structure on resource allocation, distribution of income, and welfare economics.

ECON 3003 Money and Banking

Each semester. Nature, principles and functions of money, macroeconomic theory, development and operation of financial institutions in the American monetary system, with emphasis on processes, problems, and policies of commercial banks in the United States.

ECON 3013 Economics of Labor Relations

An overview of U.S. labor sector including demographic trends, labor unions, human capital issues and work-leisure values. A brief review of neo-classical wage theory with critiques. Selected labor sector issues such as global labor developments, public sector employment, migration/mobility and discrimination.

ECON 3073 Intermediate Microeconomic Theory

An examination of the theories of consumer behavior and demand, and the theories of production, cost and supply. The determination of product prices and output in various market structures and an analysis of factor pricing.

ECON 4001-3 Readings in Economic Theory

On demand. Prerequisites: Senior standing, background of courses needed for problem undertaken and permission of the department head. Advanced study on an individual basis is offered in money and banking, public finance, general economics, international trade, labor relations, transportation.

ECON 4033 Current Economic Problems

Emphasis is on a "way of thinking" about current economic problems including a conceptual context, critical thinking and problem solving approaches. Major domestic and global economic trends are reviewed. Current economic issues are selected for evaluation.

ECON 4053 Comparative Economic Systems

Fall. Survey of a conceptual framework for comparing national economies and for studying a global economic system. Review of the current world economic environment and of policy issues at the national and multinational levels.

ECON 4073 World Economic Systems

On demand. A study of the institutional framework of an economic system selected by the instructor. The course includes a visit to the country being studied.

ECON 4093 International Economics and Finance

A course designed specifically for economics and finance majors desiring an understanding of the interplay of economic and financial forces between nations. While developing the theoretical base underlying these forces, the course will emphasize practical aspects of cross-border flows of goods, services, and capital from the point of view of the firm. Lecture and discussion will be supplemented by analysis of cases and current events where appropriate. The content of the course should be readily applicable to any private or public sector policy-making situation involving an international dimension in which students find themselves.

Educational Foundations

EDFD 3023 Human Development

A study of the physical, emotional, mental, and social growth of the individual beginning with the prenatal period and continuing through adulthood.

EDFD 3042 Educational Psychology

Prerequisite: Admission to Stage II of the teacher education program and completion or concurrent enrollment in EDFD 3023. General principles of learning, the learner's potentialities with attention to individual differences, the environment of effective learning, application of psychology to educational problems. May not be taken for credit after completion of EDFD 3043.

EDFD 3072 Introduction to Educational Measurements

Prerequisite: Admission to Stage II of the teacher education program and completion or concurrent enrollment in EDFD 3023. Characteristics of good school appraisal; principles and procedures in the selection and use of standardized tests; techniques in the construction and use of classroom tests; the interpretation of various types of tests. May not be taken for credit after completion of EDFD 3073.

EDFD 4052 Teaching Exceptional Learners

Prerequisite: Admission to Stage II of the teacher education program. A study of the major areas of exceptionality including the learning disabled, mentally retarded, physically disabled, and the gifted, and of their special needs in a school program. May not be taken for credit after completion of EDFD 4053 or repeated for credit as EDFD 5052 or equivalent.

EDFD 4333 Teaching Reading and Study Strategies in the Content Area

Prerequisite: Admission to Stage II of the teacher education program. This course is designed to provide pre-service and in-service teachers and administrators with a knowledge of reading factors as they relate to various disciplines. The content of the course includes estimating the student's reading ability, techniques for vocabulary, questioning strategies, and developing reading-related study skills. May not be repeated for credit as EDFD 5333.

Educational Media

EDMD 3013 Integrating Instructional Technology

An instructional technology course for preservice to teachers introducing students to the incorporation of technology into instructional situations. Students will become familiar with classroom computer utilization for instructional and classroom management technology, state and national standards for technology and curriculum areas, and create lessons centered upon those standards.

EDMD 4033 Introduction to Instructional Technology

A media methods course for teachers providing an introduction to classroom computer utilization; applications of the principles of graphic design, visual literacy, communications and learning theory to the selection, evaluation and use of instructional materials, and a survey of production techniques for teacher-made materials. Includes basic production principles, operation of audiovisual equipment, and an introduction to computer-assisted instruction and computerized classroom management. May not be repeated for credit as EDMD 5033 or equivalent.

Electrical Engineering

ELEG(MCEG) 1012 Introduction to Engineering
Prerequisite: MATH 1113 or any higher level mathematics course. An introductory course to acquaint students with the technical and social aspects of engineering, the analytic approach to problem solving, measurements and calculations, including application of computer techniques. Lecture one hour, laboratory two hours.

ELEG 2103 Electric Circuits I
Corequisite: MATH 2934 or consent of instructor. An introduction to circuit theory and electrical devices. Topics include resistive circuits, independent and dependent sources; analysis methods, network theorems; RC and RL first order circuits, and RLC second order circuits. Lecture three hours.

ELEG 2111 Electric Circuits Laboratory
Corequisite: ELEG 2113. Report writing; use of basic electrical measurement devices; voltmeters, ammeters, R meters, wattmeters, and oscilloscopes. Computer modeling and data analysis of AC and DC circuits. Emphasis on developing laboratory techniques through experiments paralleling topics in ELEG 2103 and ELEG 2113. Laboratory three hours per week.

ELEG 2113 Electric Circuits II
Prerequisite: ELEG 2103 or consent of instructor. Prerequisite/Corequisite MATH 3243. A continuation of ELEG 2103 covering phasor analysis, steady state power, complex network functions, frequency response, transformers, Laplace methods. Lecture three hours.

ELEG 2130 Digital Logic Design Lab
Corequisite: ELEG 2134. Prerequisite: COMS 2803 or COMS 2104 or consent of instructor. Laboratory must be taken during the same semester as the lecture, ELEG 2134. A study of basic digital logic circuit design and implementation. Circuit schematic development utilizing computerized automated design tools. Computer modeling and simulation of digital systems. Emphasis will be placed on proper laboratory techniques, including data collection, data reduction, and report preparation. Laboratory three hours.

ELEG 2134 Digital Logic Design
Corequisite: ELEG 2130. Prerequisite: COMS 2803 or COMS 2104 or consent of instructor. Binary numbers and codes, Boolean algebra, combinational and sequential logic including: minimization techniques, memory systems, register transfers, control logic design, and state machines. Lecture three hours.

ELEG(MCEG) 3003 Engineering Modeling and Design

Prerequisites: COMS 2803 or MCEG 2203 and MATH 3243. Reduction of engineering systems to mathematical models; methods of analysis using computers; interpretation of numerical results; optimization of design variables. Examples are drawn from various engineering disciplines. Lecture three hours.

ELEG 3103 (PHYS 3143) Electronics I
Prerequisite: ELEG 2113. Physics and electrical characteristics of diodes, bipolar transistors, and field effect transistors, behavior of these devices as circuit elements; common electronic circuits in discrete and integrated form; digital circuits including standard IC gates and flip-flops, linear circuits including standard discrete and integrated amplifier configurations and their characteristics. Lecture three hours.

ELEG 3123 Signals and Systems
Prerequisites: MATH 3243, ELEG 2113. Signal and system modeling, time and frequency domain analysis, singularity functions, the Dirac Delta function, impulse response, the superposition integral and convolution, Fourier series and Fourier and Laplace transformations. Lecture three hours.

ELEG 3131 Electronics Laboratory
Prerequisite: ELEG 2111 and ELEG 3103. Experiments paralleling ELEG 3103 emphasizing the applications and limitations of discrete electronic devices, circuit modeling, and applications of integrated circuits. Laboratory three hours per week.

ELEG 3133 Microprocessor Systems Design
Prerequisites: ELEG 2134 and ELEG 2130 or consent. Digital design using microprocessors. Microcomputer architecture, memory structures, I/O interfaces, addressing modes, interrupts, assembler programming, development tools. This course should also attract computer science students interested in hardware. Lecture three hours.

ELEG 3143 Electromagnetics
Prerequisite or Corequisite: ELEG 3123. An introduction to static and dynamic electromagnetic fields using vector methods. Transmission lines, electrostatic fields, magnetostatic fields, Maxwell's equations, plane electromagnetic wave propagation, reflection, refraction, attenuation, antennas, reciprocity, and gain. Lecture three hours.

ELEG 3151 Electrical Machines Laboratory
Prerequisite: ELEG 2111. Corequisite: ELEG 3153. This course parallels ELEG 3153 with experiments in single and polyphase transformers, direct current machines, synchronous machines and induction machines. Laboratory three hours per week.

ELEG 3153 Electrical Machines
Prerequisite: ELEG 2113. Steady-state analysis of single phase and polyphase transformers, direct current machines, synchronous machines, induction machines, and special purpose machines. Special emphasis will be given to the modeling and control of these machines. Lecture three hours.

ELEG 3163 Electric Power Systems
Prerequisite: ELEG 2113. Introduction to industrial and utilities electric power systems, poly-phase systems, fault conditions, per-unit values, and the method of symmetrical components.

ELEG 4103 Electronics II
Prerequisite: ELEG 3103. A continuation of ELEG 3103 specializing in characteristics and applications of both linear and digital integrated circuits; amplifiers, feedback analysis, frequency response, oscillators, amplifier stabilization, microprocessors, memory systems, emphasis on design. Lecture three hours.

ELEG 4113 Digital Signal Processing
Prerequisites: ELEG 3123. The study of discrete-time signals and systems, convolution, correlation, z-transform, discrete-time Fourier transform, analysis and design of digital filters. Lecture three hours.

ELEG 4133 Advanced Digital Design
Prerequisites: ELEG 2134. Principles of digital systems design and the use of hardware description languages (HDL) are targeted toward the development of programmable logic devices in this project oriented course. The basic tenets of HDL will be presented including design flow, structural and behavioral descriptions, data types, concurrent and sequential statements, processes, procedures, functions, and packages. Approximately one hour per week will be devoted to supervised project development.

ELEG 4143 Communication Systems I
Prerequisites: ELEG 3123, MATH 3153. An introduction to design and analysis of analog and digital communication systems. Amplitude and angle modulation and demodulation, bandwidth, frequency division multiplexing, sampling and pulse-code modulation, detection error statistics in digital communication. Lecture three hours.

ELEG 4153 Communication Systems II

Prerequisite: ELEG 4143. Continuation of ELEG 4143. Design and analysis of analog and digital communication systems, taking into account the effects of noise. Random variables, random processes, analog and digital communication systems in the presence of noise. Lecture three hours.

ELEG 4163 Acoustics

Prerequisite: MATH 3243. An introduction to the fundamental principles governing generation, propagation, reflection, and transmission of sound waves in fluids. The student will be exposed to a broad field of acoustic topics including: auditorium and musical acoustics; principles of loudspeakers, microphones, arrays and directivity; environmental noise standards and regulations; noise abatement, passive and active control. Completion includes a design project and written report. Lecture 3 hours.

ELEG 4193 Electrical Design Project

Prerequisites: ELEG 3003, 4103, ELEG(MCEG) 4202, senior standing and consent of instructor. An independent or group project in electrical engineering design. Where appropriate, a team approach will be employed. Emphasis will be placed on designing an electrical system or sub-system with due regard for: safety, environmental concerns, reliability, longevity, ease of manufacturing, maintainability, and cost effectiveness. A written and oral report are required.

ELEG(MCEG) 4202 Engineering Design

(ELEG majors) prerequisite: Senior standing and corequisite ELEG 4103. This course serves as the first part of a two course sequence in which the student completes a senior design project. Design methodologies and tools including real world design considerations such as environmental impact, engineering ethics, economics, safety, product costing and liability are introduced. Design for manufacture, project management, scheduling and proposal writing will be covered. Successful completion of this course shall require completion of a proposal for a senior design project being accepted by the faculty design project review process.

ELEG 4303 Control Systems

Prerequisites: ELEG(MCEG) 3003 and ELEG 2113. An introduction to the field of control system engineering. Topics include: open and closed loop systems; mathematical modeling of electrical and mechanical systems; linearization; stability; block diagram reduction; signal flow graphs; transient analysis; stability analysis; root locus analysis; frequency analysis; and an introduction to compensator design. Lecture three hours.

ELEG 4313 Modern Control Systems

Prerequisite: ELEG 4303. A continuation of ELEG 4303 Control Systems. Topics include: frequency response design, state space analysis, controllability, observability, state space design, robustness, and an introduction to digital control. Lecture three hours.

ELEG 4951-4 Undergraduate Research in Electrical Engineering

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

ELEG(MCEG) 4991-4 Special Problems in Engineering

Prerequisite: Minimum of three hours at the junior level in area of study. Individual study in advanced area of the student's choice under the direction of a faculty advisor.

Emergency Administration and Management

EAM 1003 Living in a Hazardous Environment

Overview of emergency management systems with an analysis of the causes, characteristics, nature and effects of such disasters as avalanches, drought, earthquakes, epidemics, fires, flooding, hazardous materials, hurricanes, industrial accidents, nuclear power plant accidents, power failures, volcanoes, and other catastrophic hazards. Required for major.

EAM 1013 Aim and Scope of Emergency Management

Analysis of disasters in historical settings and current situations. Areas covered include the role of local, state, and federal government, the unique problems of business/industry crisis management, disaster prevention and mitigation policy, technology support, and professionalism and litigation issues. Required for major.

EAM 2033 Citizen/Family/Community Disaster Preparedness Education

Prerequisites: EAM 1003 and 1013 or consent of instructor. The course covers the need for citizen disaster preparedness; research findings on the subject; program design models; team and coalition building, materials and approaches, effective presentation skills, overcoming disaster denial and apathy; preparedness with children, the elderly, and other high-risk populations.

EAM 3003 Developing Emergency Management Skills

Prerequisites: EAM 1003 and 1013 or consent of instructor. Topics covered in this course include: program planning and management, financial planning and management, managing information, managing people and time, personality types, leadership styles, followership styles, decision-making skills, team-building skills and group dynamics; community-building skills, intergovernmental relationships, negotiating skills, communications skills, emergency management ethics, and professionalism.

EAM 3013 Public Policy Issues in Emergency Management

Prerequisites: EAM 1003 and 1013 or consent of instructor. The course will analyze the role of public policy in relation to disaster planning issues, financial impact of disasters, disaster mitigation issues, land use planning, disaster recovery issue, legal and liability issues, management of large-scale disaster response/recovery, and disaster legislation.

EAM 3023 Principles and Practice of Disaster Planning and Response Operations

Prerequisites: EAM 1003 and 1013 or consent of advisor. The course is an in-depth study of pre-plan requirements, hazards and resource assessments, vulnerability analysis, methodology of planning, and public policy considerations. Course content will include steps necessary for implementing a disaster plan and recovery efforts with consideration given to disaster warning systems, emergency center operations, public health issues in large-scale disasters, the press and communications issues, utilizing local, state, and federal interfaces. May not be taken for credit after completion of EAM 1023 and 2023.

EAM 3033 The Social Dimension of Disaster

Prerequisites: EAM 1003 and 1013 or consent of instructor. Overview of empirical vs theoretical approaches; human behavior in disaster, myths and reality; group disaster behavior; community social systems and disaster; cultures, demographics and disaster behavior distinctions, and model-building in sociological disaster research.

EAM 3123 Public Information Skills for Emergency Managers

This course provides the student with experience in dealing with the media before, during and after a crisis or disaster. The student will be able to demonstrate presentation skills using a variety of communication styles, graphics integration, informational brochures, and electronic resources. Much of the course will involve working at on site locations with actual media contact.

EAM 3133 Applied Principles of Personnel Management

This course supports the needs of emergency management professionals whose career fields require competencies in the area of human resources/personnel management. The focus of the course is on the practical application, essential theories, and process of personnel management from the perspective of a generalist. Course content will include the essential aspects of recruitment, selection, training, legal rights and responsibilities, compensation and appraisal.

EAM 3143 The Economics of Disaster

Prerequisites: EAM 1003 and 1013 or consent of instructor. The course concentrates on the implications of disaster on state, regional, national, and international economies; case studies in false economies; economics of disaster modeling; and current issues in state, federal, and global economic disaster policy.

EAM 3206 Externship

Prerequisites: EAM 1003 and 1013 or consent of instructor. This course should be completed by the end of the junior year. Students will enroll in this course, pay the regular tuition and fees, and complete an assessment portfolio documenting their experience and training totaling 150 contact hours. No more than 100 contact hours of FEMA study courses can be applied. At least 50 hours of training or related activities must be included. This course is graded Pass/Fail.

EAM 3243 Introduction to Terrorism

Prerequisites: EAM 1003 and 1013 or consent of instructor. This course is an overview of terrorism in which students will explore various aspects of terrorism in a Post 9/11 world leading to a basic understanding of a global phenomenon. Subject matter will include the history of terrorism, its strategies, and why those strategies are effective. The student will examine the psychology of fundamentalist religious movements and extreme political organizations. While studying the effects of terrorism the student will examine governmental concerns, preparedness and response operations and the politics of dealing with terrorism.

EAM 4003 Principles and Practice of Disaster Relief and Recovery

Prerequisites: EAM 1003 and 1013 or consent of instructor. Recovery issues are studied and how they relate to ethical, medical, and economic and environmental considerations; initial, short-term, and long-term recovery efforts and group exercises; and documentation and record-keeping.

EAM 4013 Business and Industry Crisis Management

Prerequisites: EAM 1003 and 1013 or consent of instructor. The course provides an analysis of the players involved; conjunction with governmental emergency management; legal requirements; employee disaster awareness and preparedness; disaster mitigation and response; business resumption considerations and public policy considerations and community outreach.

EAM 4023 Information Technology and Emergency Management

Prerequisites: EAM 1003 and 1013 or consent of instructor. The course emphasizes the utilization of computer EM applications literacy, information requirements, acquisition, analysis, modeling, and data base management; decision support systems and computer EM software; networking; telecommunications; remote sensing technologies, and other emerging technologies related to EM applications.

EAM 4033 Emergency Management Research Methods/Analysis

Prerequisites: EAM 1003 and 1013 or consent of instructor. The course covers the basic research methodology and statistical analysis required for managing a research/data base to be utilized for decision-making and policy development. Required for major.

EAM 4043 Disaster and Emergency Management Ethics

Prerequisites: EAM 1003 and 1013 or consent of instructor. The course will involve a study of a variety types of ethical theory (teleological, deontological, distributive theories of justice, natural law), a review of specific ethical dilemmas per disaster phase, professional ethics, overcoming biases, avoiding discrimination, and developing sensitivity. Detailed ethical case studies will be conducted (Bhopal, Chernobyl, Three-Mile Island, Love Canal, Exxon Valdez).

EAM 4053 Community Management of Hazardous Materials

Prerequisites: EAM 1003 and 1013 or consent of instructor. The course addresses chemical properties of hazardous materials and wastes; legal requirements for their handling, storage, transportation, and disposal; and methods for protecting employees, facilities, and the community.

EAM 4106 Practicum/internship

Prerequisites: EAM 1003 and 1013 or consent of instructor. Students will enroll in this course and pay the regular tuition and fees in order to obtain credit on their transcripts toward degree requirements. A portfolio will be required to document competencies attained. A minimum of 400 hours of relevant work experience must be completed in an approved internship site. The student will work with an advisor to have a site approved at least one semester in advance.

EAM 4951-4 Undergraduate Research in Emergency Administration and Management

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

EAM 4991-3 Special Problems and Topics

Prerequisites: EAM 1003 and 1013 or consent of instructor. The topics will vary to reflect the continual changes in the emergency management field. This course may also serve as an independent study course upon recommendation of the advisor and approval by the dean.

English

ENGL 0203 English as a Second Language

A course in basic English grammar, composition, reading, aural comprehension, and oral communication designed to prepare speakers of English as a second language for the six-hour, college-level composition sequence. The grade in this course will be computed in semester and cumulative grade point averages, but the course may not be used to satisfy general education requirements nor provide credit toward any degree. Students who are placed in ENGL 0203 must earn a grade of "C" or better in the course before enrolling in ENGL 1013. A student who makes a "D" or "F" in ENGL 0203 must repeat the course in each subsequent semester until he or she earns a grade of "C" or better.

ENGL 0303 Foundational Composition

A course in basic grammar and writing to prepare students for the required six-hour composition sequence. The grade in the course will be computed in semester and cumulative grade point averages, but the course may not be used to satisfy general education requirements nor provide credit toward any degree. A student who is placed in ENGL 0303 must earn a grade of "C" or better in the course before enrolling in ENGL 1013. A student who makes a "D" or "F" in ENGL 0303 must repeat the course in each subsequent semester until he or she earns a grade of "C" or better.

ENGL 1013 Composition I

Prerequisite: Score of 19 or above on English section of the Enhanced ACT, 460 or above on the quantitative portion of the SAT, 40 or above on the TSWE, 75 or above on the COMPASS writing section, or a grade of "C" or better in ENGL 0203 or 0303. A review of grammar, introduction to research methods, and practice in writing exposition using reading to provide ideas and patterns. May not be taken for credit after successful completion of ENGL 1043.

ENGL 1023 Composition II

Prerequisite: Minimum grade of "C" in ENGL 1013 or 1043. A continuation of ENGL 1013 with readings in poetry, fiction, and drama. May not be taken for credit after successful completion of ENGL 1053.

ENGL 1043 Honors Composition I

Prerequisite: Admission to the Tech Honors Program or permission of the Honors Program Director. An honors course that concentrates on advanced reading and writing skills. May not be taken for credit after successful completion of ENGL 1013.

ENGL 1053 Honors Composition II

Prerequisite: Successful completion of ENGL 1013 or ENGL 1043 and admission to the Tech Honors Program or permission of the Honors Program Director. An honors writing course that includes the study of poetry, fiction, and drama. May not be taken for credit after successful completion of ENGL 1023.

NOTE: A grade of "C" or better must be earned in each of the two composition courses used to satisfy the general education requirement of English/Communication.

ENGL 2003 Introduction to World Literature

Prerequisite: ENGL 1013 or equivalent. An exploration of significant authors and themes in world literature. ENGL 2003 may be used to fulfill the general education humanities requirements.

ENGL 2013 Introduction to American Literature

Prerequisite: ENGL 1013 or equivalent. An exploration of significant authors and themes in American literature. ENGL 2013 may be used to fulfill the general education humanities requirement.

ENGL 2043 Introduction to Creative Writing

Prerequisite: ENGL 1023 or equivalent. Introduction to techniques of writing both fiction and poetry.

ENGL 2053 Technical Writing

Prerequisite: ENGL 1023 or equivalent. Practice in composing abstracts, instructions, visuals, proposals, questionnaires, letters, memos, and a variety of informal and formal reports.

ENGL 2063 Advanced Composition: Practice and Theory

Prerequisite: ENGL 1023 or equivalent. Practice with several types of expository writing. An introduction to research techniques and theory.

ENGL (JOUR) 2173 Introduction to Film

Prerequisite: ENGL 1013 or equivalent. A study of film as an art form with particular attention given to genres, stylistic technique and film's relation to popular culture. ENGL 2173 may be used to fulfill the General Education fine arts requirement. ENGL 2173 may not be repeated for credit after the completion of JOUR 2173.

ENGL 2213 Introduction to Drama

Prerequisite: ENGL 1013 or equivalent. A study of drama as literature; a study of terminology and elements of drama and the reading of selected works, including both classic and contemporary.

ENGL 2223 Introduction to Poetry

Prerequisite: ENGL 1013 or equivalent. A study of basic form, terminology and specific works.

ENGL 2233 Introduction to Fiction

Prerequisite: ENGL 1013 or equivalent. A study of form, terminology, and specific works of fiction.

ENGL 2263 Mythology

Prerequisite: ENGL 1013 or equivalent. An introduction to the Western mythologies and a study of their influence on Western literature.

ENGL 2283 Science Fiction and Fantasy

Prerequisite: ENGL 1013 or equivalent. A survey course which covers classics of the science fiction and fantasy genres. Approach to the works is both historical and thematic.

ENGL 2881 Practicum-Literary Journal Publication

Prerequisite: ENGL 1013 or equivalent. Students will work as staff members of NEBO: A Literary Journal. May be repeated for a maximum of five semester hours. Cumulative hours in ENGL 2881 and ENGL 4881-4 may not exceed nine.

ENGL 3013 Systems of Grammar

Prerequisite: ENGL 1023 or equivalent. A synthesis of the most useful elements of traditional, transformational, and structural grammar.

ENGL(FR, GER, SPAN, SPH) 3023 Introduction to Linguistics

Prerequisite: ENGL 1023 or equivalent. A study of basic concepts in language, comparative characteristics of different languages, and the principles of linguistic investigation.

ENGL 3083 Fiction Workshop

Prerequisite: ENGL 2043. Concentration in the writing and evaluation of fiction. May be repeated once for credit as ENGL 3083.

ENGL 3093 Poetry Workshop

Prerequisite: ENGL 2043. Concentration in the writing and evaluation of poetry. May be repeated once for credit as ENGL 3093.

ENGL 3103 Literary Theory

Prerequisite: ENGL 1023 or equivalent. A study of contemporary critical approaches to literature.

ENGL 3173 Studies in Film

Prerequisite: ENGL 1023 or equivalent. A focused study of selected films. Course content will vary. May be repeated for credit as ENGL 3173 if course content differs.

ENGL 3203 Modern Novel

Prerequisite: ENGL 1023 or equivalent. Reading in representative novels written since 1900.

ENGL 3223 Young Adult Literature

Prerequisite: ENGL 1023 or equivalent. A survey of young adult literature.

ENGL 3243 Early Novel

Prerequisite: ENGL 1023 or equivalent. Reading in representative novels written before 1900.

ENGL 3293 Studies in Literature and Language

Prerequisite: ENGL 1023 or equivalent. A focused study of selected literary works or selected language topics. Course content will vary. May be repeated for credit as ENGL 3293 if course content differs.

ENGL 3303 Literature of the South

Prerequisite: ENGL 1023 or equivalent. Reading in representative works by writers in the South since the Civil War.

ENGL 3313 American Literature to 1900

Prerequisite: ENGL 1023 or equivalent. Readings in the works of colonial and nineteenth-century American authors.

ENGL 3323 Modern American Literature

Prerequisite: ENGL 1023 or equivalent. Readings in the works of twentieth-century American authors.

ENGL 3413 British Literature to 1800

Prerequisite: ENGL 1023 or equivalent. Readings in the works of selected early British authors.

ENGL 3423 British Literature since 1800

Prerequisite: ENGL 1023 or equivalent. Readings in the works of nineteenth- and twentieth-century British authors.

ENGL 3453 Chaucer

Prerequisite: ENGL 1023 or equivalent. A study of representative works.

ENGL 3463 Shakespeare

Prerequisite: ENGL 1023 or equivalent. A study of selected comedies, histories, and tragedies.

ENGL 3513 Methods of Research

Prerequisite: ENGL 2063, equivalent, or consent. A study of techniques for research.

ENGL 4013 History of the English Language

Prerequisite: ENGL 3023, equivalent, or consent. The development of English sounds, inflections and vocabulary.

ENGL 4023 Second Language Acquisition

Prerequisite: ENGL 1023, equivalent, or permission of the instructor. An investigation and analysis of the theoretical foundations of learning a second language as a guide to the effective teaching of English to limited English proficiency (LEP) students.

ENGL 4053 Seminar in Technical Communication

Prerequisite: ENGL 2053 or consent. Course content will vary. May be repeated for credit as ENGL 4053 if course content differs.

ENGL 4083 Seminar: English Language

Prerequisite: ENGL 1023 or equivalent. Course content will vary. May be repeated for credit as ENGL 4083 or ENGL 5083 if course content differs.

ENGL 4093 Seminar in Creative Writing

Prerequisite: ENGL 2043. Course content will vary. May be repeated for credit as ENGL 4093 if course content varies.

ENGL 4213 American Folklore

Prerequisite: ENGL 1023 or equivalent. A study of the forms and subjects of American folklore, folklore scholarship and bibliography; field work in collecting folklore. May not be repeated for credit as ENGL 5213.

ENGL 4283 Seminar: World Literature

Prerequisite: ENGL 1023 or equivalent. Course content will vary. May be repeated for credit as ENGL 4283 or ENGL 5283 if course content differs.

ENGL 4383 Seminar: American Literature

Prerequisite: ENGL 1023 or equivalent. Course content will vary. May be repeated for credit as ENGL 4383 or ENGL 5383 if course content differs.

ENGL 4483 Seminar: British Literature

Prerequisite: ENGL 1023 or equivalent. Course content will vary. May be repeated for credit as ENGL 4483 or ENGL 5483 if course content differs.

ENGL 4683 Seminar In Women's Studies

Prerequisite: ENGL 1023 or equivalent. Course content will vary. May be repeated for credit as ENGL 4683 or ENGL 5683 if course content differs.

ENGL 4703 Teaching English as a Second Language

Prerequisite: ENGL 1023, equivalent, or consent. An investigation and practice in teaching different levels of English grammar, oral communication, comprehension skills, reading, and composition to foreign students.

ENGL 4713 ESL Assessment

Prerequisite: ENGL 1023, equivalent, or consent. An introduction to the tools, techniques, and procedures for evaluating the English proficiency and language development of ESL students.

ENGL 4723 Teaching People of Other Cultures

Prerequisite: ENGL 1023, equivalent, or consent. An examination of cultural diversity in Arkansas and the United States, designed for prospective ESL teachers.

ENGL 4733 Teaching English in the Secondary School

Prerequisite: Admission to Stage II of the teacher education program. To be taken within one year before student teaching. An introduction to methods and materials used to teach secondary English.

ENGL 4813 Senior Project in Creative Writing

Prerequisite: completion or concurrent enrollment in ENGL 3083 and ENGL 3093. Completion of a significant creative writing project approved by the instructor.

ENGL 4881-4 Practicum-Editing Literary Journal

Prerequisite: ENGL 3083, 3093, or consent. To select and edit writing for publication and to direct staff members in the production of NEBO: A Literary Journal. Candidates for editorial positions must apply to the English Department at the start of the spring semester. May be repeated for a maximum of six semester hours. Cumulative hours in ENGL 2881 and ENGL 4881-4 may not exceed nine.

ENGL 4951-4 Undergraduate Research in English

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

ENGL 4991-4 Special Problems in English

Prerequisite: English major or minor and consent of instructor and department head. Course content and credit are designed to meet the needs of the student.

Finance

(Additional prerequisites for 3000- and 4000-level courses are listed in the College of Business section of this catalog.)

FIN 2013 Personal Finance

Prerequisites: sophomore standing. A course designed to provide students with the fundamental skills of personal financial planning and goal achievement. Topics covered include financial planning, cash and credit management, insurance, investment, and retirement and estate planning.

FIN 3043 Investments I

This course provides the fundamental concepts of the investment area including markets, stocks and bonds, investment environments, economic, industry and security analysis, and portfolio concepts. May not be taken for credit after successful completion of ECON 3043.

FIN 3063 Business Finance

Prerequisite: BUAD 2053. Nature of business finance and its relation to economics, accounting, and law; role of the financial manager and financial markets; financial forecasting, planning, and budgeting; securities valuation, capital budgeting, and cost of capital; capital structure and working capital management; international finance. May not be taken for credit after successful completion of ECON 3063.

FIN 4023 Investments II

Prerequisite: FIN 3043 (ECON 3043). This course provides further work with investment concepts involving derivative securities, specialized investment products, international investing, real estate, insurance products, construction of a portfolio, and work with computerized investment software. May not be taken for credit after successful completion of ECON 4023.

FIN 4043 Principles of Risk and Insurance

Prerequisite: FIN 3063 (ECON 3063). A course designed to provide an understanding of the insurance field. Course content includes a survey of the extent and types of risk in business; ways of dealing with business risk; and a survey of insurance for risk-bearing purposes. May not be taken for credit after successful completion of ECON 4043.

FIN 4053 Internship I in Economics/Finance

Prerequisite: Permission of the Instructor, Department Head and Dean; Junior Standing; minimum 2.5 overall GPA. A supervised, practical experience providing undergraduate ECON/FIN majors with a hands-on, professional experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A College of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make a classroom presentation, maintain an internship log, and prepare a final term paper. Note: Only three hours of internship may be used to satisfy the curriculum requirements for economics and finance electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

FIN 4063 Internship II in Economics/Finance

Prerequisite: Internship I, permission of the Instructor, Department Head and Dean; Junior Standing; minimum 2.5 overall GPA. To be taken following completion of Internship I. A supervised, practical experience providing undergraduate ECON/FIN majors with a hands-on, professional experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A College of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make a classroom presentation, maintain an internship log, and prepare a final term paper. Note: Only three hours of internship may be used to satisfy the curriculum requirements for economics and finance electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

FIN 4103 Special Topics in Finance

This course provides in-depth exploration of selected finance topics. The primary topic will vary from offering to offering; this, the course may be taken more than once.

Fisheries and Wildlife Science

FW 1001 Orientation to Fisheries and Wildlife Science

Fall. An introduction to professions in fisheries and wildlife science. Required of fisheries and wildlife students during their first fall term on the Tech campus. Lecture one hour.

FW 2003 Elements of Fish and Wildlife Management

Fall. Principles of fish and wildlife management for the non-major, including fish and wildlife identification and the role of various natural resource-organizations in conservation. Lecture three hours.

FW 3001 Junior Seminar in Fisheries and Wildlife Biology

Fall. Restricted to junior fisheries and wildlife biology majors or by consent of instructor. Instruction and practice in methods for scientific presentation and resume preparation. Assessment of career goals. Lecture one hour.

FW 3053 Fisheries and Wildlife Administration

Fall of even years. Prerequisites: FW 1001 and junior standing, or permission of instructor. Administration of fish and wildlife agencies, including organizational designs and policies, planning, directing, budgeting, personnel management, and public relations. Special consideration will be given to public, scientific, and economic considerations in the decision-making process. Lecture three hours.

FW 3074 Habitat Evaluation

Fall of even years. Introduction to aquatic and terrestrial habitat mensuration and evaluation for field biologists, with emphasis on the description and demonstration of evaluation procedures and software. Lecture two hours, laboratory four hours. \$20 laboratory fee.

FW(BIOL) 3084 Ichthyology

Fall. Prerequisite: BIOL 2124. Systematics, collection, identification, natural history, and importance of fishes. Lecture two hours, laboratory four hours. \$20 laboratory fee.

FW(BIOL) 3114 Principles of Ecology

Fall and Spring. Prerequisites: BIOL 2124, 2134, and one semester of chemistry. Responses of organisms to environmental variables, bioenergetics, population dynamics, community interactions, ecosystem structure and function, and major biogeographical patterns. Lecture two hours, laboratory four hours. \$20 laboratory fee.

FW(BIOL) 3144 Ornithology

Spring. Prerequisite: BIOL 2124. An introduction to the biology of birds. The course covers aspects of anatomy, physiology, behavior, natural history, evolution, and conservation of birds. Laboratories address field identification and natural history of the birds of Arkansas. Students will be expected to participate in an extended 5-7day field trip. Lecture two hours, lab four hours. \$20 laboratory fee.

FW(BIOL) 3154 Mammalogy

Fall. Prerequisite: BIOL 2124. Taxonomy identification, ecology, and study natural history of the mammals. Lecture three hours, laboratory two hours. \$20 laboratory fee.

FW(BIOL) 3163 Biodiversity and Conservation Biology

Fall of even years. Prerequisites: FW(BIOL) 3114 and one of the following: BIOL 3004, FW(BIOL) 3084, BIOL 3094, BIOL 3134, FW(BIOL) 3144, FW(BIOL) 3154, BIOL(FW) 3224, BIOL 4044, or permission of instructor. The concepts of, processes that produce, and factors that threaten biological diversity are introduced and examined. Further emphasis is placed on unique problems associated with small population size, management of endangered species, and practical applications of conservation biology. Lecture three hours.

FW 3173 Biostatistics

Fall. Prerequisite: one semester of statistics. An analysis and interpretation of fisheries and wildlife data including descriptive statistics, hypothesis testing, analysis of variance, simple linear regression, correlation, goodness of fit, and contingency tables.

FW 3204 Aquaculture

Spring. Prerequisite: BIOL 2124 or permission of instructor. Course is designed to provide students with the essentials of successful warmwater aquaculture including crayfish and alligators. Basics of cool and coldwater aquaculture are also covered. Emphasis ranges from maintenance of brood stock and culture of fingerlings to production of market-size fish. Lecture three hours, laboratory two hours plus several full-day field trips that may involve weekend or overnight travel. \$20 laboratory fee.

FW(BIOL) 3224 Herpetology

Spring of odd years. Prerequisite: BIOL 2124. The phylogeny, classification, physiology, behavior, and distribution of reptiles and amphibians. The Laboratory will stress identification of the species found in Arkansas. Lecture two hours, laboratory four hours. \$20 laboratory fee.

FW 4001 Senior Seminar in Fisheries and Wildlife Biology

Fall. Restricted to senior fisheries and wildlife biology majors or by consent of instructor. Designed to integrate various aspects of fisheries and wildlife biology by covering current topics and to acquaint students with areas not covered elsewhere in the curriculum. Lecture one hour.

FW 4003 Principles of Wildlife Management

Spring. Prerequisite: FW(BIOL) 3114 or permission of instructor. Principles of managing wildlife resources with emphasis on the history of wildlife resources in the United States, population ecology, wildlife values, and the administration of wildlife resources and resources agencies. Lecture three hours.

FW 4013 Wildlife Techniques

Fall. Prerequisites: FW(BIOL) 3114 or permission of instructor. Instruction in current wildlife techniques including habitat evaluation and manipulation, estimation of wildlife abundance, capturing and marking, identification, aging, and scientific writing. Course is structured around a research project that requires use of popular wildlife techniques. Lecture one hour, laboratory four hours. \$20 laboratory fee.

FW 4014 Forest Ecology and Management

Fall. Prerequisite: FW(BIOL) 3114. An in-depth coverage of ecological interactions in forested ecosystems. Lectures cover biotic and abiotic factors that influence development and species compositions of forest stands. Wildlife habitat relationships in forested ecosystems will also be discussed. Laboratories will familiarize students with field techniques and management activities important in the major forest types of Arkansas. Lecture two hours, lab four hours. \$20 laboratory fee.

FW(BIOL) 4024 Limnology

Spring. Prerequisite: FW(BIOL) 3114. A study of physical and chemical processes in fresh water and their effects on organisms in lakes and streams. Laboratory sessions and field trips demonstrate limnological instrumentation and methodology. Lecture two hours, laboratory four hours. \$20 laboratory fee.

FW 4034 Geographic Information Systems in Natural Resources

Spring. Prerequisites: PSY(SOC) 2053 or MATH 2163 and Computer and Information Science elective or GEOG 4833. Use of GIS technology in wildlife and fisheries management and research. Emphasis placed on creation, maintenance, and analysis of spatially explicit data. Two hours lecture, four hours lab. \$10 laboratory fee.

FW 4043 Fisheries Techniques

Spring. Prerequisites: FW(BIOL) 3114 and a computer science elective, or permission of instructor. The techniques and practices of warmwater fish management. Major emphasis will be placed on survey techniques, data collection, and data analysis techniques. Lecture one hour, laboratory four hours. \$20 laboratory fee.

FW 4054 Waterfowl Ecology and Management

Spring. Prerequisites: BIOL/FW 3114. Ecology and management of North American waterfowl and their habitats. Laboratory exercises will focus on identification, life histories, sex and age determination, and abundance survey methods. Lectures and discussions will cover behavioral ecology, reproductive ecology, winter ecology, harvest management, and habitat management and conservation. Lecture two hours, laboratory four hours. \$20 laboratory fee.

FW 4064 Wetland Ecology and Management

Fall. Prerequisites: BIOL/FW 3114. An in-depth coverage of wetlands including occurrence, morphology, hydrology, soils, ecology, and regulation. The types of wetlands and their functions will be discussed, as will local, state and federal regulations pertaining to their use, management and protection. Laboratory will focus on identification of common wetland vegetation, delineation of wetland boundaries, as well as field techniques and management activities commonly used in Arkansas wetlands. Lecture three hours, laboratory two hours. \$20 laboratory fee

FW 4083 Principles of Fisheries Management

Fall. Prerequisites: FW(BIOL) 3114, one semester of statistics, and one semester of calculus, or permission of instructor. The principles and theory of warmwater fish management with major emphasis on the human dimension in fisheries management, fishery assessment, population dynamics, and common management practices. Lecture three hours.

FW 4103 Human Dimensions of Fisheries and Wildlife Management

Spring. Prerequisites: BIOL/FW 3114 (Ecology) or permission of instructor. Exploration of the complex interactions of social, political, institutional, economic and ecological processes that contribute to natural resource use and management. The primary focus is on interactions and conflict resolution among various stakeholders, resource management agencies, and wildlife and fisheries resources. Topics covered include public attitudes and expectations; agency structure and policy; values of fishes, wildlife; and public relations. Lecture three hours.

FW 4112 Internship

Each semester. Prerequisites: Consent of program director. A supervised, practical experience providing FW majors with a hands-on, professional experience related to their career interests. Approximately 200 clock hours, a proposal, a log book, and a written report are required. A maximum of four credit hours is allowed for FW internship.

FW 4114 Internship

Each semester. Prerequisites: Consent of program director. A supervised, practical experience providing FW majors with a hands-on, professional experience related to their career interests. Approximately 400 clock hours, a proposal, a log book, and a written and oral report are required. A maximum of four credit hours is allowed for FW internship.

FW 4881-4 Advanced Topics

On demand. Prerequisite: Consent of instructor. Open to junior and senior students only. Offers special instruction on fisheries and wildlife topics that are not otherwise covered in the curriculum. The primary focus of the course will vary from offering to offering, thus the course may be taken more than once. \$10 laboratory fee for four credit hour class only.

FW 4951-4 Undergraduate Research in Fisheries and Wildlife

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

FW 4991-4 Directed Research in Fisheries and Wildlife Management

Each semester. Open to fisheries and wildlife majors with approval of department head and individual instructor who will advise on research topic. Research may vary to fit needs and interests of the student. Unless permission is granted by the department head, no more than two credit hours will be given in any semester for a particular research topic.

French

FR 1014 Beginning French I

Training in the elements of French communication and comprehension. Four hours of applied class work. One hour of foreign language lab per week is required. Advanced placement and credit by examination are available to students who have previously studied French.

FR 1024 Beginning French II

Prerequisite: FR 1014 or equivalent. Training in basic French communication and comprehension skills to satisfy minimum survival needs in French-speaking countries. Four hours of applied class work. One hour of foreign language lab per week is required.

FR 2014 Intermediate French I

Prerequisite: FR 1024 or equivalent. Development of the skills necessary to understand and communicate in everyday situations in French-speaking countries. Four hours of applied class work. One hour of foreign language lab per week is required.

FR 2024 Intermediate French II

Prerequisite: FR 2014 or equivalent. Further development of the skills necessary to understand and communicate in everyday situations in French-speaking countries. Four hours of applied class work. One hour of foreign language lab per week is required.

FR 3003 Conversation and Composition I

Prerequisite: FR 2024 or permission of instructor. Development of advanced control of French communication and comprehension through the study of French-language media (radio broadcasts, television newscasts and commercials, prose texts, periodical articles) and through classroom debates and simulations. Laboratory work by arrangement.

FR 3013 Conversation and Composition II

Prerequisite: FR 3003 or permission of instructor. Continuation of FR 3003.

FR (ENGL, GER, SPAN, SPH) 3023 Introduction to Linguistics

Prerequisite: ENGL 1023 or equivalent and FR 2024 or equivalent. A study of basic concepts in language, comparative characteristics of different languages, and the principles of linguistic investigation.

FR 3113 Culture and Civilization

Prerequisite: FR 3013 or permission of instructor. Development of an understanding of French life through study and analysis of French history and geography texts, film, advertising, and mass media.

FR (GER, JPN, SPAN) 3143 Study Abroad

Prerequisite: enrollment in a Tech-sanctioned study program in a French-speaking country, completion of FR 2024 or equivalent, and permission of the Study Abroad supervisor. Study of the contemporary language and culture in a French speaking country. May substitute for FR 3003 or FR 3013, depending on the student's proficiency level.

FR (GER, SPAN) 3163 Community Internship Experience

Prerequisite: completion of FR 2024 or equivalent. Study of contemporary language and culture in a French-speaking community or setting. May be taken instead of FR 3143 to meet degree requirements.

FR 3213 Advanced Grammar and Usage

Prerequisites: FR 3013 or permission of instructor. The course is designed to build writing competence and strengthen grammatical competence. Grammar will be studied within the context of writing assignments. The course will deepen the knowledge of the language through the usage of applied linguistics, syntax, grammar, and semantics.

FR 3223 Short Story

Prerequisite: FR 3013 or permission of instructor. An introductory study of French short stories. Students will analyze short texts to strengthen their reading and text interpretation skills and to increase their knowledge of vocabulary.

FR (GER, SPAN) 4003 Oral Communication

Prerequisite: FR 3013 or permission of instructor. This course is designed to strengthen students' oral communication skills by enabling them to converse easily with native speakers on everyday topics in preparation for the oral proficiency interview (OPI). \$134 interview fee.

FR 4213 French Literature to 1800

Prerequisite: FR 3223 or permission of instructor. Careful study of selected French texts to introduce students to various literary genres and general literary trends.

FR 4223 French Literature since 1800

Prerequisite: FR 3223 or permission of instructor. A study of representative texts from the period for understanding of genres, styles, and language.

FR 4283 Seminar in French

Prerequisite: FR 3013. Course content will vary. May be repeated for credit if course content varies.

FR (GER, SPAN) 4701 Foreign Language Pedagogy

Prerequisites: Admission to student teaching phase of the teacher education program and concurrent enrollment in SEED 4909. Intensive on-campus exploration of the principles of curriculum construction, applied methods, professional collaboration, and evaluation as related to teaching French, German, or Spanish, followed by professional internship application of these principles under the supervision of a qualified departmental instructor.

FR (GER, LAT, SPAN) 4703 Foreign Language Teaching Methods

Prerequisites: FR 3013 and 3113 or equivalent; admission to Stage II of the Secondary Education sequence or equivalent. Survey of instructional methods with discussions and demonstrations of practical techniques for the teaching of foreign language.

FR 4801 Cultural Immersion and Research

Prerequisite: Enrollment in French Immersion Weekend and permission of instructor. Intensive study of French cultural topics followed by individual research projects. May be repeated for credit if content varies.

FR (GER, JPN, SPAN) 4901-3 Foreign Language Internship

Prerequisites: Advanced foreign language proficiency; permission of the instructor and the department head. The Foreign Language Internship is intended primarily for majors in foreign languages or international studies. It is designed to provide outstanding students the opportunity to perfect their language proficiency and to acquire specific training and skills overseas. The overseas sponsor and the foreign language instructor of record will supervise the intern. Performance evaluations and a research paper will be required.

FR 4951-4 Undergraduate Research in French

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

FR 4991-4 Special Problems in French

Prerequisite: FR 2024 and consent of the instructor and the department head. Designed to provide advanced students with a course of study in an area not covered by departmental course offerings.

Geography

GEOG 2013 Regional Geography of the World

Prerequisite: Minimum score of 19 on the English and Reading portions of the ACT or successful completion of ENGL 1013 or equivalent. A survey of major regions with particular emphasis upon Europe, the Commonwealth of Independent States, the Orient, the Mid-East, Africa, and Latin America.

GEOG 2023 Human Geography

A systematic treatment of the major concepts of human geography and their application to modern problems, consideration of population, cultural patterns and processes, political organization of space, agricultural and rural land use, industrialization and economic development, and cities and urban land use.

GEOG 3033 Physical Geography

A description and interpretation of the physical features of the surface zone of the earth and how man interrelates with this complex natural environment.

GEOG 3113 Geography of the United States and Canada

A regional study emphasizing the physical and cultural aspects of Anglo-America.

GEOG 3303 Geography of Latin America

A regional study of the lands and people of Latin America and their interrelationships. Particular attention will be given to Mexico, Brazil, and Argentina.

GEOG 3413 Geography of Europe

A regional study of the physical and cultural aspects of Europe (including the C.I.S.) and their interrelationships.

GEOG 3703 Geography of Asia

A regional study of the lands and peoples of Asia and their interrelationships with particular emphasis on India, China, and Japan.

GEOG 4023 Economic Geography

A study of the resources at man's disposal and his economic activities in utilizing these resources. Special attention is given to industrial and agricultural resources of leading nations. May not be repeated for credit as GEOG 5023 or equivalent.

GEOG 4803 Seminar in Global Studies

A seminar on current world geographic influences that affect the nations of the world, such as demographics, complex environmental and physical changes, and political and economic relationships.

GEOG 4833 Geographic Information Systems

Prerequisite: COMS 2003, or permission of the instructor. An introductory course dealing with computer organized spatial and attribute data. GIS is a system of specialized computer programs with the capability to manipulate and analyze data for problem solving.

GEOG 4951-4 Undergraduate Research in Geography

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

GEOG 4991-4 Special Problems in Geography

Admission requires consent of department head.

Geology

GEOL 1004 Essentials of Earth Science

An introduction to the fundamental topics of earth science including physical and historical geology, oceanography, and meteorology. Laboratory exercises include the study of minerals, rocks, fossils, topographic and geologic maps, and oceanographic and meteorological phenomena. Laboratory work will stress the use of the scientific method of problem solving. This course is designed as a general education science requirement and for prospective early childhood and middle level school teachers. Lecture three hours, laboratory three hours. \$10 laboratory fee. Duplicate credit for GEOL 1004 and GEOL 1014 will not be allowed.

GEOL 1014 Physical Geology

A survey of the earth's features and forces which modify its surface and interior. Laboratory exercises include the study of minerals, rocks, and landforms through the use of topographic maps and aerial photography. Lecture three hours, laboratory three hours. \$10 laboratory fee. Duplicate credit for GEOL 1014 and GEOL 1004 will not be allowed.

GEOL 2001 Seminar

(See GEOL 3001.)

GEOL 2024 Historical Geology

Spring. Prerequisite: GEOL 1014. A survey of the physical and biological history of the earth. Laboratory exercises include the study of fossils, geologic maps, and cross-sections. Lecture three hours, laboratory three hours. \$20 laboratory fee.

GEOL(BIOL, CHEM) 2111 Environmental Seminar

(See GEOL 4111.)

GEOL 3001 Seminar

Prerequisites: GEOL 1014 and 2001. Participants will prepare oral and written reports and participate in discussions of the reports. Topics for the seminar will be determined by the instructors but will be subjects which are beyond the scope of other geology courses.

GEOL 3004 Structural Geology

Spring. Prerequisites: GEOL 1014, 2024, and MATH 1203 or 1913. A study and analysis of the structural features of the earth's crust. Lecture three hours, laboratory two hours. \$20 laboratory fee.

GEOL 3014 Mineralogy

Fall. Prerequisites: GEOL 1014, 2024; CHEM 1114 or 2124. A study of crystallography, physical and chemical properties, origin, occurrence, and structure theory of minerals. Lecture two hours, laboratory four hours. \$20 laboratory fee.

GEOL 3023 Geologic Field Techniques

Fall. Prerequisites: GEOL 1014, 2024 and 3004. Interpretation of aerial photographs; mensuration techniques using the Brunton compass, hand level, and Jacob's staff, measurement and description of stratigraphic sections; construction of and geologic maps; collecting, sampling, and collation procedures. Lecture-laboratory four hours. \$20 laboratory fee.

GEOL 3044 Geomorphology

Fall odd year. Prerequisites: GEOL 1014, 2024, 3004, and 3164. A study of land forms and the processes which shape the earth's surface. Special emphasis will be placed on slope-forming and fluvial processes. Lecture three hours, laboratory three hours. \$20 laboratory fee.

GEOL 3053 Geology of Energy and Metallic Resources

Prerequisites: GEOL 1014, 3014, and 3164. A study of the principal earth materials essential to local and national economies. Location, genesis, methods of extraction, and primary utilization and conservation are emphasized. Lecture three hours.

GEOL 3083 Hydrogeology

Spring even year. Prerequisites: MATH 1113 and GEOL 1014 or permission of the instructor. The earth's hydrologic system is studied in terms of both empirical and quantitative aspects of the steady-state condition of groundwater and its interaction with surface water, as well as transient behavior from the influence of wells. Basic water chemistry is also covered along with transport and fate of pollutants in groundwater. Lecture 3 hours.

GEOL(BIOL, CHEM) 3111 Environmental Seminar

(See GEOL 4111.)

GEOL 3124 Invertebrate Paleontology

Spring odd year. Prerequisite: GEOL 2024. A systematic study of invertebrate fossils and their geologic significance. Lecture-laboratory six hours. \$20 laboratory fee.

GEOL 3153 Environmental Geology

Fall even year. Prerequisite: GEOL 1014. A study of the geological factors which influence the pollution of land, water, and biological resources; the role of rock and soil in the geobiological community; hydrology; land-sliding and faulting in the human environment, natural resource problems; urban and land-use planning based on geological data. Lecture three hours.

GEOL 3164 Petrology

Spring. Prerequisite: GEOL 3014. A study of the classification, origin, geologic occurrence, physical and chemical properties of igneous, sedimentary, and metamorphic rocks. Lecture three hours, laboratory three hours. \$20 laboratory fee.

GEOL 3174 Computer Applications in Geology

Spring odd year. Participants will focus on mastering common geotechnical, oil and gas, and Geographic Information Systems (GIS) software utilized throughout the geologic profession. Course will include techniques on GIS analysis; generating stratigraphic sections, cross-sections, structure contours, fence diagrams, rose diagrams, and other geologic documents; geologic data management. \$20 course fee.

GEOL 4001 Seminar

(See GEOL 3001.)

GEOL 4006 Field Geology

Each summer by arrangement. Prerequisites: GEOL 1014, 2024, 3004, 3014, 3023, 3124, and 3164. A six-week summer course of instruction in the use of geologic mapping instruments, interpretation of aerial photographs and their use in the construction of geologic maps, development of techniques necessary in geologic field work, and recognition and interpretation of geologic phenomena. \$10 laboratory fee. The course is offered in cooperation with the University of Arkansas and will be taught in the Dillon, Montana region. The fee for room and board is approximately \$900; cost of tuition and transportation is not included in this amount.

GEOL 4013 Optical Mineralogy

Prerequisites: PHYS 2024, GEOL 3014, 3164. A study of minerals in thin sections with the petrographic microscope. Lecture-laboratory four hours. \$10 laboratory fee.

GEOL 4023 Principles of Stratigraphy and Sedimentation

Spring even year. Prerequisites: GEOL 3124 and 3164. A study of sedimentary rocks and their stratigraphic relationships. Lecture three hours.

GEOL 4034 Subsurface Geology

Spring even year. Prerequisites: GEOL 3004, 3164, 4023, MATH 1113, PHYS 2014, 2024. A study of analytic procedures in selected topics in geophysics, well-logging, and subsurface geological relationships. Lecture three hours, laboratory two hours. \$10 laboratory fee.

GEOL(BIOL, CHEM) 4111 Environmental Seminar

A seminar for students pursuing the environmental option of geology, biology, or chemistry and other students interested in environmental sciences.

GEOL 4951-4 Undergraduate Research in Geology

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

GEOL 4991-2 Special Problems in Geology

Open to geology majors with the approval of the department head.

German

GER 1014 Beginning German I

Introduction to conversation, basic grammar, reading, and writing. Four hours of classroom instruction. Advanced placement and credit by examination are available to students who have previously studied German. One hour of foreign language lab per week is required.

GER 1024 Beginning German II

Prerequisite: GER 2014 or equivalent. Continued instruction in grammar and fundamental language skills. Four hours of classroom instruction. One hour of foreign language lab per week is required.

GER 2014 Intermediate German I

Prerequisite: GER 1024 or equivalent. Instruction designed to develop greater facility in fundamental skills and more extensive knowledge of grammar. Four hours of classroom instruction. One hour of foreign language lab per week is required.

GER 2024 Intermediate German II

Instruction intended to complete the survey of the basic grammar of the language and to provide the mastery of fundamental skills essential for enrollment in upper-level German courses. Four hours of classroom instruction. One hour of foreign language lab per week is required.

GER 3003 Conversation and Composition I

Prerequisite: GER 2024 or permission of instructor. Further study of German based on analysis of short texts (newspaper articles, short stories, plays, poetry). Students are expected to use German in oral and written expression.

GER 3013 Conversation and Composition II

Prerequisite: GER 3003 or permission of instructor. Continuation of GER 3003.

GER(ENGL, FR, SPAN, SPH) 3023 Introduction to Linguistics

Prerequisites: ENGL 1023 or equivalent and GER 2024 or equivalent. A study of basic concepts in language, comparative characteristics of different languages, and the principles of linguistic investigation.

GER 3113 Culture and Civilization

Prerequisite: GER 3013 or permission of instructor. Study of the geography, history, arts, institutions, customs, and contemporary life of the German-speaking peoples.

GER (FR, JPN, SPAN) 3143 Study Abroad

Prerequisite: enrollment in a Tech-sanctioned study program in a German-speaking country, completion of GER 2024 or equivalent, and permission of the Study Abroad supervisor. Study of the contemporary language and culture in a German speaking country. May substitute for GER 3003 or GER 3013, depending on the student's proficiency level.

GER (FR, SPAN) 3163 Community Internship Experience

Prerequisite: completion of GER 2024 or equivalent. Study of contemporary language and culture in a German-speaking community or setting. May be taken instead of GER 3143 to meet degree requirements.

GER 3213 Advanced Grammar and Usage

Prerequisites: GER 3013 or permission of instructor. The course is designed to build writing competence and strengthen grammatical competence. Grammar will be studied within the context of writing assignments. The course will deepen the knowledge of the language through the usage of applied linguistics, syntax, grammar, and semantics.

GER 3223 Short Story

Prerequisite: GER 3013 or permission of instructor. An introductory study of German short stories. Students will analyze short texts to strengthen their reading and text interpretation skills and to increase their knowledge of vocabulary.

GER (FR, SPAN) 4003 Oral Communication

Prerequisite: GER 3013 or permission of instructor. This course is designed to strengthen students' oral communication skills by enabling them to converse easily with native speakers on everyday topics in preparation for the oral proficiency interview (OPI). \$134 interview fee.

GER 4213 German Literature to 1832

Prerequisite: GER 3223 or permission of instructor. A survey of major writers and representative works from early Middle Ages through the Age of Goethe.

GER 4223 German Literature since 1832

Prerequisite: GER 3223 or permission of instructor. A survey of major writers and representative works since the Age of Goethe.

GER 4283 Seminar in German

Prerequisite: GER 3013 or permission of instructor. Course content will vary. May be repeated for credit if course content varies.

GER (FR, SPAN) 4701 Foreign Language Pedagogy

Prerequisites: Admission to student teaching phase of the teacher education program and concurrent enrollment in SEED 4909. Intensive on-campus exploration of the principles of curriculum construction, applied methods, professional collaboration, and evaluation as related to teaching French, German, or Spanish, followed by professional internship application of these principles under the supervision of a qualified departmental instructor.

GER (FR, SPAN) 4703 Foreign Language Teaching Methods

Prerequisites: GER 3013 and GER 3113 or equivalent; admission to Stage II of the Secondary Education sequence or equivalent. Survey of instructional methods with discussions and demonstrations of practical techniques for teaching of foreign language.

GER(FR, JPN, SPAN) 4901-3 Foreign Language Internship

Prerequisites: Advanced foreign language proficiency; permission of the instructor and the department head. The Foreign Language Internship is intended primarily for majors in foreign languages or international studies. It is designed to provide outstanding students the opportunity to perfect their language proficiency and to acquire specific training and skills overseas. The overseas sponsor and the foreign language instructor of record will supervise the intern. Performance evaluations and a research paper will be required.

GER 4951-4 Undergraduate Research in German

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

GER 4991-4 Special Problems in German

Prerequisite: GER 2024 and consent of the instructor and the department head. Designed to provide advanced students with a course of study in an area not covered by departmental course offerings.

Gifted Education

GTED 4003 Understanding the Gifted in Home, School, and Community

Prerequisite: Consent of instructor. GTED 5003 may not be taken for credit after completion of GTED 4003 or GTED 6833. A survey in gifted education providing basic knowledge and concepts of interest to parents, prospective teachers, and the community at large.

Greek

GRK 1013 Beginning Classical Greek I

Instruction in the fundamentals necessary to read and write classical Greek.

GRK 1023 Beginning Classical Greek II

A continuation of GRK 1013.

GRK 2013 Intermediate Classical Greek I

Prerequisite: GRK 1023 or equivalent. A study designed to continue the development of fundamental skills and to give a general reading knowledge of classical Greek and acquaintance with classical Greek literature, history, and philosophy.

GRK 2023 Intermediate Classical Greek II

A continuation of GRK 2013 which concentrates on the works of Homer, Plato, Herodotus, and selected Attic dramatists.

GRK(LAT) 3001 Greek and Latin Scientific Terminology

The course is designed to assist students with their understanding of English words which have their roots in Greek or Latin. Students who in their course of study need to know specialized vocabulary, such as science, math, pre-med, pre-law and nursing majors, will find this course extremely helpful.

Health Education

HLED 1513 Personal Health and Wellness

Each semester. The course is designed to motivate students toward an individual responsibility for their health status and an improved quality of life. An introspective study of personal lifestyle behavior is encouraged. The interrelationship of the multi-causal factors which directly affect health status and the various dimensions of personal health are addressed.

HLED 3203 Consumer Health Programs

A study of current health services and the products offered by health providers to the health consumer and an examination of various diseases and disorders.

HLED 4303 Methods and Materials in Health for Grades K-12

Exploration of teaching methods and strategies, use of school and community resources, and evaluation related to teaching health in grades K-12.

HLED 4403 Nutrition and Physical Fitness

Prerequisite: PE 2653. A health education course which is designed to familiarize students with food as it relates to optimal health and performance. Focus is on nutrition as it affects the physical-work capacity of humans from resting states to high output performance.

HLED 4991-3 Special Problems in Health

Independent work on approved health topics under the individual guidance of a faculty member. Admission requires consent of department head.

Health Information Management

HIM 1001 Health Information Management Orientation

Fall. An introductory course with emphasis on the basics of health information management as related to career choices, giving the student a better understanding of opportunities in the field. The course will also focus on helping the student develop good study skills, career goals, and understand policies and information needed for a successful college career.

HIM(AHS) 2033 Coding Principles for Medical Office

Prerequisites: AHS 2013, 1023, BIOL 2004, or permission of instructor. A study of medical coding using ICD-9-CM and CPT codes in the medical office. Students will be taught to evaluate patients' medical records to correctly assign both diagnostic and procedural codes required for healthcare reimbursement in the medical office setting.

HIM 3023 Introduction to Health Information Management

Fall. Prerequisite: Admission to the HIM Program. A study of the history of health records, professional ethics, the functions of a health information department, retention of records, medical forms, health information practices, and responsibilities to healthcare administration, medical staff, and other medical professionals.

HIM 3033 Basic Coding Principles

Fall. Prerequisite: BIOL 2004, AHS 2013, or permission of instructor. An in-depth study of the principles of disease and procedural coding using the ICD-9-CM classification system. Areas emphasized during the course include: the purpose of coding, the definition of key terms, accurate application of coding principles, methods to assure quality data, and a review of the impact of prospective reimbursement on the function of coding.

HIM 3043 Advanced Concepts in Health Information

Fall. Prerequisite: HIM 3023. A study of such advanced concepts as quality improvement, utilization review, licensure and accreditation standards, medical staff, and interdisciplinary relationships.

HIM 3132 Health Data and Statistics

Spring. Prerequisite: HIM 3023 or permission of instructor. A study of the methods of recording diagnoses and operations by recognized systems of disease, procedural and pathological nomenclatures and classification systems, manual and computerized systems of indexing and abstracting, research and statistical techniques, and health information data handling.

HIM 3133 Alternative Health Records

Spring. Prerequisite: HIM 3023. A study of health record requirements in non-traditional settings such as cancer programs, ambulatory care facilities, mental-health centers, and long-term care facilities.

HIM 3153 Current Issues in Health Information Management

Prerequisite: HIM 3023. An in-depth study of the latest issues affecting the field of health information management. Specific topics will vary to reflect emerging technology including such topics as eHIM, electronic health records, personal health records and HIPAA privacy concepts.

HIM 4034 Advanced Coding Principles

Spring. Prerequisite: HIM 3033. A continuation of HIM 3033, dealing with advanced principles of coding using ICD-9-CM and CPT-4. Experience with coding of health records as well as DRG grouping and the administrative aspects of coding will be emphasized. \$10 lab fee.

HIM 4063 Organization and Administration

Fall. Prerequisites: HIM 3023 and senior standing. A study of the application of the principles of organization, administration, supervision, human relations, work methods, and organizational patterns in the health information department. The duties and relationships of the health information manager and the social forces affecting the department and current trends in hospital and medical care are investigated.

HIM 4073 Legal Concepts for the Health Fields

Spring. Prerequisites: HIM 3023 and senior standing, or permission of instructor. A study of the principles of law as applied to the health field. Consideration is given to the importance of health records as legal documents as well as a general introduction to the law, administration of the law, legal aspects of healthcare facility and medical staff organization, release of information, confidential communication and consents and authorizations.

HIM 4083 Health Organization Trends

Spring. Prerequisites: HIM 3023 and senior standing, or permission of instructor. A comprehensive review of the trends and changes in the healthcare field. Historical aspects of healthcare organization and governmental health agencies are reviewed. Emphasis is placed on current events in the healthcare arena.

HIM 4092 Research in Health Information Management

Fall. Prerequisites: HIM 3023 and senior standing. A study of the specific research methodology used in a health information management setting. Emphasis will be given to hands-on performance of research in conjunction with area health care facilities and agencies. Formal presentation of research will also be a component of the course.

HIM 4153 Principles of Disease

Spring. Prerequisites: AHS 2013, BIOL 2004, and permission of instructor. An introduction to medical science, including the etiology, treatment and prognosis of various diseases. Emphasis is given to the medical information as viewed from the standpoint of a health information management professional.

HIM 4182 Professional Practice Experience I

Fall. Prerequisites: HIM 3023, HIM 3043, HIM 3133, HIM 3132 and HIM 3033. Active participation within an actual health information management department providing a supervised learning experience through which the student develops insight, understanding, and skills in health information procedures, accepts responsibilities and recognizes the need for confidentiality. \$10 laboratory fee.

HIM 4292 Professional Practice Experience II

Spring. Prerequisites: HIM 4182. A supervised learning experience through which the student learns to recognize the contribution of and learns to work with other professional and non-professional personnel, learns to recognize and deal with personnel problems in a health information department. \$10 laboratory fee.

HIM 4892 Seminar in Health Information

First summer term. Corequisite: HIM 4895. A seminar, utilizing the case method approach, on problem situations encountered in the field of health information management. This course includes discussion of problems that arise during their affiliation experience.

HIM 4895 Affiliation

First summer term. Prerequisites: Successful completion of all required HIM courses except HIM 4892. Provides the student with a four-week management experience in the activities and responsibilities of the health information management professional. Augments theoretical instruction received during previous courses. Student is actively involved in the management process while under direct supervision of a qualified health information management professional. Although every effort is made to secure a convenient locale, the student must assume full financial responsibility for this assignment. \$10 laboratory fee.

HIM 4951-4 Undergraduate Research in Health Information Management

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

HIM 4983 Systems Analysis for Health Information Management

Fall. Prerequisites: COMS 1003, COMS 2003, HIM 3023, or MGMT 2013 and senior standing. A course designed to provide a detailed study of the relationship between health information management departments and computerized information systems. Students will learn from a variety of projects related directly to the clinical setting.

HIM 4991-4 Special Problems in Health Information Management

Each semester. Open to health information management senior students only. The problems will vary to fit the needs of the student and reflect the continual changes in the allied health field.

History

HIST 1503 World Civilization I

The history of humanity from prehistoric times to the sixteenth century.

HIST 1513 World Civilization II

The history of humanity from the sixteenth century to the present.

HIST 2003 United States History I

Prerequisite: Minimum scores of 19 on the English and Reading portions of the ACT or successful completion of ENGL 1013 or equivalent. The study of the development of the American nation to the Civil War and Reconstruction Era.

HIST 2013 United States History II

Prerequisite: Minimum score of 19 on the English and Reading portions of the ACT or successful completion of ENGL 1013 or equivalent. The study of the development of the American nation since the Civil War and Reconstruction Era.

HIST 2153 Introduction to Arkansas History

Prerequisite: HIST 2003 or HIST 2013. An introductory course on the history of Arkansas. Lectures, discussions, and applied activities will be central to this course. This course is a professional education requirement for Early Childhood and Middle Level Education majors, and may not be counted toward the History and Political Science nor the History and Political Science Education degree. Students may not take this course after completion of HIST 4153.

HIST 2513 Sources and Methods in History

This course is designed as an introduction to the field of historical research. This course introduces techniques and methods of historical research, basic historiography, bibliographical aids, and the study and writing of history. It is a hands-on course where students will use the skills learned to evaluate social science research.

HIST 3013 Colonial America

The European background, the settlement of British colonies, the development of provincial institutions, and the emergence of an American civilization in the seventeenth and eighteenth centuries.

HIST 3023 The Era of the American Revolution

The deterioration of empire relationships from 1763 to 1776, with an examination of the causes and consequences of the American Revolution and the post-war problems leading to the establishment of a new government under the Constitution in 1789.

HIST 3033 The Early American Republic

The social, cultural, economic, and political climate in which Jeffersonian-Jacksonian democracy developed.

HIST 3043 Civil War and Reconstruction

The social, political, economic, and intellectual backgrounds of the war; the military operations; analysis of Reconstruction.

HIST 3063 The Gilded Age/Progressive Era, 1877-1914

Explores the major issues associated with Gilded Age America (immigration, industrialization, urbanization, imperialism, rise of organized labor) and examines the origins, goals, and legacies of the Populist and Progressive reform movements.

HIST 3073 The United States: 1914-1945

Examines the American entry and contribution in World War One; the post-war settlement; the various social, economic, and political trends of the 1920s; the Great Depression; the New Deal; American foreign policy in the inter-war era; and the American role in World War Two, and its effects on American society and culture.

HIST 3083 The United States: 1945-Present

Explores the origins of and American responses to the Cold War, the rise of various reform movements in the 1950s-60s, the New Frontier and Great Society programs, the Vietnam War, and the rise of the New Right.

HIST 3103 The Old South

A survey of the political, social, and economic development of the American South before the Civil War.

HIST 3123 The New South

A survey of the political, social, and economic development of the American South from the end of the Civil War to the present.

HIST 3313 Colonial Latin America

A survey of the political, economic, social and cultural aspects of Latin America to 1825. Emphasis is on cross-cultural accommodation and the role of indigenous, African, and European cultures in shaping Latin American development.

HIST 3323 Modern Latin America

A survey of the political, economic, social and cultural aspects of Latin America since 1825. Emphasis is on cultural values and structures from the colonial period, continuing patterns of authoritarianism, the struggle to establish democratic institutions, and Latin America's role in world affairs.

HIST 3413 History of Classical Greece and Rome

The origins and development of Classical civilization in ancient Greece, the rise of the Roman Republic, and the ascendancy and decline of the Roman Empire.

HIST 3423 History of the Middle Ages, 300-1300

Decline of the ancient Roman civilization; rise, ascendancy, and decline of medieval civilization; emphasis upon the Christian church and the rise of national monarchies.

HIST 3433 The Renaissance and European Expansion 1300-1550

Fuelled by a growing urban economy and despite the setbacks of the Black Death, Europeans during the Renaissance revived and adapted models of classical learning, created new forms of artistic and vernacular expression, forged national identities, opened up new trade routes, and encountered a New World.

HIST 3443 The Reformation and Early Modern Europe 1500-1688

A study of the social, political, intellectual and cultural impact of the Protestant Reformation, the Roman Catholic response, the sixteenth and seventeenth-century Wars of Religion, the development of confessional cultures, and the continued rise of the European nation-state in both its absolutist and constitutional forms.

HIST 3453 The Era of the French Revolution and Napoleon, 1763-1815

A study of the new ideas and forces in Europe which caused the French Revolution; the events and consequences of the Revolution, including the establishment and demise of the French imperium in Europe.

HIST 3473 The Age of Enlightenment 1688-1789

A study of the changes in the political, cultural, intellectual, and social environments which characterized Europe during the period 1688-1789 which transformed the roles of the Citizen, the State, and the Church.

HIST 3483 Reaction and Reform, 1815-1871

A study of the changes in the political, cultural, intellectual, and social environments which characterized Europe during the period between the Congress of Vienna through the rise of the modern nation states.

HIST 3493 The Age of Empire, 1871-1919

A study of the changes in the political, cultural, intellectual, and social environments which characterized Europe during the period between the rise of the modern nation states to the end of the First World War.

HIST 3503 Europe Between the Wars, 1919-1939

A study of the changes in the political, cultural, intellectual, and social environments which characterized Europe during the period between the end of the First World War to the beginning of the Second World War.

HIST 3513 Europe Since 1939

A study of the changes in the political, cultural, intellectual, and social environments which characterized Europe during the period between the beginning of the Second World War to the present.

HIST 3533 History of Russia

A study of the cultural and political history of Russia from the reign of Peter the Great to the present, emphasizing trends in the nineteenth century which culminated in the Bolshevik Revolution.

HIST 3543 History of England to 1689

A survey of the political, legal, and constitutional development of England, with particular emphasis on England's development in relation to that of Western Europe in general.

HIST 3553 History of England Since 1689

A study of the cultural, political, and constitutional history of England in the modern era, with a consideration of the influence of England upon the institutions of her colonies and of the role of England in the economic development of the Western World.

HIST 3603 History of Modern East Asia

This course deals with the history of East Asia after 1800. The major stress is placed upon the history of China, Korea, and Japan.

HIST 3703 History of Modern Africa

A treatment of African history since 1600, dealing with the development of African states in sub-Saharan Africa up to present African nations.

HIST 3803 History of the Middle East

Political, social, and cultural survey of the history of the Middle East from the rise of Islam to modern times.

HIST 4013 American Military History

A study of the American military from its colonial origins to the present, including the development of the military establishment and its relationship with American society. May not be repeated for credit as HIST 5013 or equivalent.

HIST 4023 Vietnam War

A study of the American involvement in Vietnam, from 1945 until 1975. Emphasis will rest on the actual period of war in Vietnam. May not be repeated for credit as HIST 5023.

HIST 4033 The Frontier in American History

Study of the American frontier as a place, as a process, and as a state of mind influential in shaping institutions and attitudes during the expansion of this nation westward from Atlantic to Pacific. May not be repeated for credit as HIST 5033 or equivalent.

HIST 4043 American Constitutional Development

An historical analysis of American Constitutionalism and constitutional law from earliest antecedents to the present time, as seen in the leading documents and cases dealing with judicial review, separation of powers, the federal system, commerce taxation, civil rights, and civil liberties.

HIST 4053 Economic History of the United States

A study of the major economic forces which have helped influence, and been influenced by, United States history. Particular emphasis will be given to the development of agriculture, business, industry, and labor in their American setting. May not be repeated for credit as HIST 5053 or equivalent.

HIST 4073 American Diplomatic History, 1776 - 1912

Prerequisite: HIST 2003. This course is a study of America's diplomatic relationships with other nations and peoples from 1776 to 1912. Of particular emphasis will be the changes in international affairs brought about by the evolving economic and political conditions. This course follows the United States' early struggles in diplomacy through its expansion and eventual emergence as a world power.

HIST 4083 American Diplomatic History, 1912 to the Present

Prerequisite: HIST 2013. This course is a study of America's diplomatic relationships with other nations and peoples from 1912 to the present. Of particular emphasis will be the changes in international affairs brought about by the evolving economic and political conditions. This course follows the United States' from its emergence as a world power through two world wars, a cold war, and a war on terrorism.

HIST 4103 American Political Ideas

The background and development of American political ideas from the colonial period to the present. Emphasis is placed on colonial political theory, the Founding, conflict and consensus prior to the Civil War, the response to industrialization, the rise of the positive state, nationalism, the New Left and New Right, and current trends.

HIST 4123 African American History

Prerequisites: HIST 2003 or HIST 2013. This course examines the unique role and contribution of African Americans in the overall development of American history from the colonial era to the present. Topics include African societies; black colonial life; the institution of slavery, and African American responses to slavery; the free black community; African American cultural, political, and economic development; issues of assimilation, separatism, and African American responses to institutional racism; the Civil Rights Movement, and recent developments. May not be repeated for credit as HIST 5123 or equivalent.

HIST 4133 Latinos in the United States

This course is an analysis of the historical and cultural heritage of Latinos who have lived or are currently living in the United States. This course includes the colonial origins of Latino groups and their general migration patterns to the United States. This course also explores the development of Latino communities as well as the relationship between Latinos and social institutions. May not be repeated for credit as HIST 5133 or equivalent.

HIST 4143 Native American History

Prerequisites: HIST 2003 or HIST 2013. A survey of Native American history from the Archaic period to the present. This course will present an interpretation of the historical experience of the diverse nations native to North America utilizing an ethno-historical approach. Some emphasis will be placed on the formation and operation of United States government policy regarding Native Americans in both the 19th and 20th centuries. May not be repeated for credit as HIST 5143 or equivalent.

HIST 4153 History of Arkansas

A study of the history of Arkansas from prehistoric times to the present, noting political, social, economic, and cultural trends. May not be taken for credit after completion of HIST 3153 nor repeated for credit as HIST 5153 or equivalent.

HIST 4163 American History Through Film

Prerequisite: HIST 2013. This course examines 20th century American history through the study of American film, and film as cultural and historical text. Subjects for analysis include the Great Depression, World War II, the Cold War and Cold War culture, the 1960s, Vietnam, and the Reagan era. Emphasis will be on the uses of film as both primary and secondary source material for the study of history.

HIST 4173 History of American Disasters

A comparative examination of the greatest disasters in American history, the response to them, and how they affected the future of the nation.

HIST 4183 American Legal History

This course concerns the history and development of law, legal institutions, and legal culture in the United States from its colonial origins to the present day, with emphasis on the interaction of law with the overall development of American society.

HIST 4203 Women in American History

A treatment of women in Western and American social history in their lifestyles and economic and family roles. May not be repeated for credit as HIST 5203 or equivalent.

HIST(ANTH, MUSM) 4403 Interpretation/ Education through Museum Methods

Prerequisites: Senior or Graduate standing, or permission of instructor. Museum perspectives and approaches to care and interpretation of cultural resources, including interpretive techniques of exhibit and education-outreach materials, and integrating museum interpretation/ education into public school and general public programming. Class projects focus on special problems for managing interpretive materials in a museum setting.

HIST 4483 World Economic History

World Economic History traces the development of the modern global economy from the late middle ages to the present. Special attention is given to the emergence of capitalism in Europe and its migration to other parts of the world. May not be repeated for credit as HIST 5483 or equivalent.

HIST 4503 History of Christianity

A study of Christianity, from its beginnings to the present day, focusing especially on ancient Mediterranean, medieval European, and modern American Christian traditions. Emphasis will be on the interaction between individual beliefs, group identity, and institutional forces, how each have been shaped by broader social, political and cultural contexts, and finally how these interactions have resulted in profound changes for the Christian religion.

HIST 4513 History of Science

A study of the origins, nature, and development of Western science and its social, economic, and cultural context. May not be repeated for credit as HIST 5513 or equivalent.

HIST 4713 Social Studies Methods for Secondary Teachers

Prerequisites: SEED 2002 and the completion of 36 hours in the Social Sciences. A course in subject-matter applications for secondary teacher education candidates (grades 7-12) in social studies. The course will incorporate a variety of instructional models, activities, and examples, as well as the integration of traditional and non-traditional resource materials. Must be completed prior to student teaching.

HIST 4813 World War II

A study of World War II, 1939 through 1945, in its origins and spread through world theaters.

HIST 4951-4 Undergraduate Research in History

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

HIST 4963 Senior Seminar

Required course for History/Political Science and History Education majors. Course content will cover a directed seminar in History. Research techniques will be emphasized.

HIST(POLS) 4971-6 Internship

Prerequisites: Junior or Senior standing, 2.75 grade point average, and consent of department head. A supervised placement in selected agency settings in student/trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 125 clock hours of supervision required per credit hour. May be repeated for a maximum of 6 hours credit.

HIST(POLS) 4981-3 Social Sciences Seminar

A directed seminar in an area of social sciences. The specific focus will depend upon research under way, community or student need, and the unique educational opportunity available. May be repeated for credit if course content changes.

HIST 4991-4 Special Problems in History
A course for majors and minors only. Admission requires consent by department head.

University Honors

HONR 1001 Freshman Honors Seminar

Prerequisite: Acceptance into the honors program, approval of Honors Program Director. An introductory course to the honors program, teamwork, and multidisciplinary problem-solving.

HONR 4093 Senior Honors Project

Prerequisites: Approval of the Director of Honors Program (if used for departmental requirement, all applicable prerequisites also apply). A team or individual independent research project will be completed. Projects will include some aspect of academic investigation appropriate to the subject area chosen. Presentation of project findings at annual Senior Honors Symposium will be required.

Hospitality Administration

HA (CUL) 1013 Sanitation Safety

This course provides knowledge of food safety, potable water, bioterrorism and risk management particularly in the areas of food service and storage. The student will gain knowledge on safe food handling from; receiving and storage through preparing and serving food. This course will also analyze ethical considerations with regards to food and water safety and food service. ServSafe certification from the NRAEF will result upon successful completion of standardized exam.

HA 1043 Introduction to Hospitality Management

The history and development of the hospitality industry which comprises food, lodging, and tourism management, an introduction to management principles and concepts used in the service industry, and career opportunities in the field.

HA 1063 Hospitality Technology

Prerequisite: COMS 1003. This course will focus on the fundamental features and components of computerized hotel, restaurant, and tourism management systems. The selection and implementation of technology applications to specific hotel, restaurant, and tourism management systems will be presented and discussed.

HA (CUL) 1923 Introduction to Food and Beverage Management

Prerequisite CUL (HA) 1013. This course introduces the practical skills and knowledge necessary for the effective management of food and beverage operations encompassing the historical timeline of food and beverage, non-alcoholic beverages, the identification of meats, fishes, fruits, vegetables, dairy products and proteins. This course also introduces the front-of-the-house essentials for food and beverage operations encompassing glassware, service ware and other front-of-the-house equipment.

HA (CUL) 2003 Cost Controls

This course will study the role of cost control management on overall profitability of hospitality entities. Basic principles of purchasing food, beverage, and non-food items with regards to maintaining an operation's competitive advantage within the industry will be covered.

HA (CUL) 2023 Hospitality Supervision and Leadership

This course provides comprehensive coverage of the principles, theories, human-relations techniques, leadership styles, and decision-making skills that are required to manage a team to profitable results in the foodservice and lodging industries.

HA 2043 Front Office Management

A survey of the lodging industry to include its history, growth and development, and future direction. Emphasis on front office procedures and interpersonal dynamics from reservations through the night audit.

HA (CUL) 2053 Work Experience

Prerequisites: HA major, minor and/or culinary students. Sophomore standing or permission of instructor. Placement in selected hospitality settings as a student worker under professional guidance of both agency and faculty. Students are given the opportunity to take part in meaningful work experiences in actual work situations and managerial observation. Minimum of 200 clock hours of work experience.

HA (CUL) 2063 Guest Service Management

Prerequisite HA 1063. The analysis and development of guest services management skills including leadership behavior, motivation, communication, training, staffing, etiquette, and professional service. Lecture two hours, lab minimum of three hours depending on the special event requirements. \$100 lab fee which helps to cover your meal costs and/or travel.

HA (RP) 2133 Introduction to Travel and Tourism

An introduction to travel and tourism, its components and relationship to the hospitality industry. The course will explore the current and future trends in travel and tourism and the effects on the economy, as well as the social and political impacts of travel and tourism.

HA (CUL) 2813 Basic Human Nutrition in Hospitality Administration

Study of the relationship between nutrition and health as a basis for food choices of all ages; the application of nutrient functions in human life processes and cycles; how balanced eating promotes healthy lifestyles. Current concepts and controversies are highlighted.

HA (CUL) 2913 Principles of Food Preparations

Prerequisites: HA(CUL)1923. Corequisites: HA(CUL) 2813 and CHEM 1114. Upon completion of this course the student should be able to demonstrate skills in basic cooking techniques and methods, recipe conversion, and professional food preparation and handling. Additionally, the student should be able to recognize and safely operate common foodservice equipment used in commercial kitchens and demonstrate proficient culinary knife skills. This course is 2 hours lecture and a 4 hour lab depending upon special event requirement(s). \$100 lab fee required. Additional costs: professional uniforms and knives are required and are to be considered additional out-of-pocket expenses to the student.

HA (RP) 3133 Tourism Planning

An examination of the tourism planning process and techniques. Topics include tourism as a system, levels of planning, environmental, cultural and economic components, attractions, transportation, infrastructure and marketing.

HA 3143 Executive Housekeeping

Prerequisite: HA 2043. This course evaluates the role of housekeeping, the planning and organization of various organizing tasks, and the importance of maintaining and training quality housekeeping staff. This course will evaluate managing inventories, controlling expenses and monitoring safety and security functions. This class is 2 hours lecture and 1 hour lab and will require students to have a minimum of 15 contact hours throughout the semester under supervision in a hotel housekeeping environment.

HA(RP) 4001 Internship Preparation

Prerequisites: PRHA major, senior standing, and completion of RP/HA 3043 (if required for major) or permission of department head. Preparation for the internship experience. This course is graded Pass/Fail.

HA(RP) 4003 Fundamentals of Tourism

Prerequisites: Permission of instructor or PRHA major. An overview of tourism, the components of tourism, and how it relates to the hospitality industry. Exploration of current and future trends and the effects on the economy, as well as social and political impacts of tourism are examined.

HA 4013 Hospitality Marketing and Sales

The organization of the marketing function and its role and responsibility in developing an integrated marketing program. Special attention to convention sales and management, and the role of travel-related services to the marketing function.

HA 4033 Legal Aspects of Hospitality Administration

Prerequisites: Senior standing or permission of instructor. Examination of the laws regulating the hospitality industry. Development of an appreciation of the interrelationship between the law and the hospitality industry. Exploration of how legal principles apply in the global environment of the hospitality industry.

HA 4053 Meetings and Conventions Management

Prerequisites: Junior standing plus nine hours of HA courses or by permission. Planning and managing meetings and conventions in the hospitality industry.

HA 4063 Beverage Management

Prerequisite: 21 years of age, HA major or permission of the instructor. Selection, storage, and service of beverages with emphasis on controls, merchandising, pricing, history, social and legal concerns. Successful completion of standardized exam results in ServSafe Alcohol certification from the National Restaurant Association Educational Foundation. Lecture two hours, lab two hours. \$50.00 Lab fee required.

HA 4073 Hospitality Financial Analysis

Prerequisites: ACCT 2003 and 2013, HA major. Accounting principles and procedures for the Hospitality Industry as an aid in management planning, decision making and control, financial statements, statement analysis, flow of funds, cash analysis, accounting concepts, cost accounting budgets, capital expenditures, and pricing decisions.

HA(RP) 4093 Resort Management

Prerequisites: Junior standing and nine hours of RP or HA courses or by permission. An in-depth study of resorts with respect to their planning, development, organization, management, marketing, visitor characteristics, and environmental consequences.

HA(RP) 4113 Personnel Management in Parks, Recreation, and Hospitality Administration

Prerequisites: Junior standing and nine hours of RP or HA courses. An overview of personnel considerations in various Recreation and Park agencies and the Hospitality industry. Laws, legal issues, structure, staffing, motivation, training, conduct, policies and other aspects of agency/industry personnel relations will be examined using case-studies, as well as other methods.

HA(RP) 4116 Internship

Fall, spring and summer semesters. Parks, Recreation, and Hospitality Administration majors only. Prerequisites: Senior standing, current certifications in CPR, Standard and Advanced First Aid, consent of department head and completion of all other courses applicable to degree. Placement in selected agency settings as a student intern under professional guidance of both agency supervisor and faculty. Emphasis will be placed on application of classroom theory to agency requirements which fulfill student's individual career interest. No prior experience credit will be granted. Minimum of 600 clock hours during a minimum of 15 weeks of supervised internship is required. Student cannot document more than 40 hours of work experience per week. A written report is required within two weeks of internship completion. \$100 supervisor travel fee required.

HA 4203 Hospitality Operational Problem Solving

Prerequisites: Senior standing, MGMT 3003, HA 4013. Solving practical hospitality and tourism management problems through planning, establishment of policy, analysis and application of qualitative and/or quantitative methods.

HA 4243 Advanced Lodging Operations Management

Prerequisites HA 3143, HA 3243, HA 4113. An in-depth study of hotel and lodging operations management. The analysis of competitive strategies, leadership styles, teamwork, technology and creativity in the hotel and lodging industry.

HA 4253 Club Management

Prerequisites: Junior standing and nine hours of HA courses, or permission of instructor. This course analyzes the organizational diversity of clubs exploring governance, management and operations of profit and non-profit clubs.

HA 4951-4 Undergraduate Research in Hospitality Administration

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

HA 4983 Advanced Food Production

Prerequisite: HA 2913. Upon completion of this course the student should be able to demonstrate advanced level cooking techniques and methods, recipe conversion, and professional food preparation and handling as well as managerial competencies. This course is one hour lecture and a minimum five hour lab depending on the event requirements. Advanced preparation may be required the day before or the day of an event. \$100 lab fee required which helps to cover your meal costs.

HA(RP) 4991-3 Special Problems and Topics

On demand. Investigative studies and special problems and topics related to hospitality administration.

Italian

ITAL 1014 Beginning Italian I

Emphasis on conversation; introduction to basic grammar, reading, writing, and culture.

ITAL 1024 Beginning Italian II

Continued emphasis on conversation and fundamental language skills.

ITAL 2014 Intermediate Italian I

Prerequisite: Beginning Italian II (ITAL 1024) or equivalent. Instruction designed to develop communication skills and knowledge of grammar, reading, writing, and culture.

ITAL 2024 Intermediate Italian II

Prerequisite: Intermediate Italian I (ITAL 2014) or equivalent. Instruction designed to enhance communication skills and knowledge of grammar, reading, writing, and culture.

ITAL 3113 Culture and Civilization

Prerequisite: ITAL 2024 or equivalent. Course will be geared towards students at the intermediate or above level of linguistic competence. The course will introduce students to Italian culture through the use of authentic written texts, videos and Internet materials. Although historical background information will be provided whenever necessary, the focus will be on contemporary Italian society. Students will examine current cultural issues presented on Italian TV or in newspapers and magazines.

Japanese

JPN 1014 Beginning Japanese I

No prerequisite. Introduction to the oral and written forms of the Japanese language.

JPN 1024 Beginning Japanese II

Prerequisite: JPN 1014 or equivalent. A continuation of JPN 1014.

JPN 2014 Intermediate Japanese I

Prerequisite: JPN 1014 or equivalent. Instruction designed to develop greater facility in fundamental skills. Four hours of classroom instruction.

JPN 2024 Intermediate Japanese II

Prerequisite: JPN 2014 or equivalent. A continuation of JPN 2014. Four hours of classroom instruction.

JPN 3003 Conversation and Composition I

Prerequisite: JPN 2024 or equivalent. Further study of Japanese, concentrating on grammar, reading, comprehension, essays, conversation, and kanji.

JPN 3013 Conversation and Composition II

Prerequisite: JPN 3003 or equivalent. Continuation of JPN 3003.

JPN 3113 Culture and Civilization

Prerequisite: JPN 2024 or equivalent. Study of the economic, political, and social structure of Japan and an introduction to Japanese history and culture.

JPN (FR, GER, SPAN) 3143 Study Abroad

Prerequisite: enrollment in a Tech-sanctioned study program in a Japan, completion of JPN 2024 or equivalent, and permission of the Study Abroad supervisor and Department Head. Study of the contemporary language and culture in a Japan. May substitute for JPN 3003 or JPN 3013, depending on the student's proficiency level.

JPN 4283 Seminar: Japanese Language and Culture

Prerequisite: JPN 3003 or equivalent. Specialized studies in Japanese literature, art, or social customs.

JPN(FR, GER, SPAN) 4901-3 Foreign Language Internship

Prerequisites: Advanced foreign language proficiency; permission of the instructor and the department head. The Foreign Language Internship is intended primarily for majors in foreign languages or international studies. It is designed to provide outstanding students the opportunity to perfect their language proficiency and to acquire specific training and skills overseas. The overseas sponsor and the foreign language instructor of record will supervise the intern. Performance evaluations and a research paper will be required.

JPN 4991-4 Special Problems in Japanese

Prerequisite: completion of JPN 2024 or equivalent, permission of the instructor and Department Head. This course is designed to provide advanced Japanese students with a course of study in an area not covered by the departmental course offerings.

Journalism

JOUR(ART) 1163 Basic Photography

A study of the use of the camera, films, equipment, and the basics of black and white processing and printing. Includes introduction to lighting techniques, composition, and color photography.

JOUR 1411, 1421 Print Practicum

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

JOUR 1811, 1821 Broadcast Practicum

Practical work experience in the studios of KXRJ-FM and Tech television productions. Only four hours count for the journalism major.

JOUR 1911, 1921 Multimedia Practicum

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

JOUR 2133 Introduction to Mass Communication

An introduction to the mass communication process and industry.

JOUR 2143 News Writing

A study of and practice in writing news stories.

JOUR 2153 Introduction to Telecommunication

A study of the technical, legal, programming, advertising and journalistic aspects of the telecommunication industry with practical exercises in radio, television and the Internet.

JOUR (ENGL) 2173 Introduction to Film

Prerequisite: ENGL 1013 or equivalent. A study of film as an art form with particular attention to genres, stylistic technique and film's relation to popular culture. JOUR 2173 may be used to fulfill the fine arts General Education requirement. JOUR 2173 may not be repeated for credit after the completion of ENGL 2173.

JOUR 2411, 2421 Print Practicum

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

JOUR 2811, 2821 Broadcast Practicum

Practical work experience in the studios of KXRJ-FM and Tech television productions. Only four hours count for the journalism major.

JOUR 2911, 2921 Multimedia Practicum

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

JOUR 3111, 3121 Editorial Conference

Prerequisite: Permission of instructor. Student news executives meet regularly with faculty to critique publication and broadcast products.

JOUR 3114 News Editing

Prerequisite: JOUR 2143, 3143. A study of copy reading, headline writing, makeup, and problems and policies of editing the news. Three hours lecture, two hours laboratory arranged.

JOUR 3133 Publications Management

An analysis of the problems in managing newspapers, magazines and other mass media.

JOUR 3143 News Reporting

Prerequisite: ENGL 1013 or 1043 and JOUR 2143. A study of news gathering and writing techniques.

JOUR 3153 Feature Writing

Prerequisite: Permission of the instructor. A study of and practice in writing of newspaper features and magazine articles.

JOUR 3163 News Photography

Prerequisite: ENGL 1013 or 1043. A study of the use of the camera, communication through pictures, news value in pictures, and the history of photojournalism.

JOUR 3173 Public Relations Principles

A study of public opinion and the role of the mass media in shaping it, including practice in public opinion research, communications techniques and solving public relations problems.

JOUR 3183 Broadcast News Writing

Prerequisite: JOUR 2143 or 3143. Principles and techniques of writing and production of radio and television news. Two hour class, two hour laboratory.

JOUR 3193 Television News Production

Prerequisite: JOUR 2143 or 3143 or consent of instructor. Study and practice in directing and producing television news programs, including experience in announcing, preparing scripts and video tape, and operating cameras and other studio equipment. One hour lecture, three hours laboratory.

JOUR 3273 Public Relations Writing

Prerequisites: JOUR 3173. Provides the knowledge and skill training for students to become effective public relations writers. The course will focus on style and content of writing news releases, speeches, newsletters, brochures, annual reports and other public relations communications.

JOUR 3411, 3421 Print Practicum

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

JOUR 3811-3821 Broadcast Practicum

Practical work experience in the studios of KXRJ-FM and Tech television productions, including work as manager, producer, or director. Only four hours count for the journalism major

JOUR 3911-3921 Multimedia Practicum

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

JOUR 4011-3 Practical Editing

Actual experience editing news. Arranged with an instructor. May be taken for a maximum of three hours.

JOUR 4033 Community Journalism

A study of journalism as practiced in weeklies, small dailies, and broadcast stations in small towns and cities, including the relationship of the media to the community. For majors and non-majors.

JOUR 4053 Mass Communication Seminar

Prerequisite: Permission of instructor. Studies of the relationship of mass communication to social, political, technical, and economic issues. Course content will vary. May be repeated for credit as JOUR 4053 or 5053 when course content changes.

JOUR 4073 Graphic Communication

Prerequisites: JOUR 3173 and JOUR 3273. Presents the elements of effective print design as well as the other decision making processes involved with creating an effective visual communication (type, art and illustration, basic design principles, paper and ink, printing processes, etc.). Students will create visually appealing projects using the industry standard design and photo manipulation software programs.

JOUR 4083 New Communication Technology

A study of and practice in the use of the developing technology in mass communication, including the social, legal, and economic effects.

JOUR 4091-4 Internship

Credit for work in professional journalistic settings. Credit hours will be based on hours on the job. May be taken for a total of four hours.

JOUR 4111-4121 Editorial Conference

Prerequisite: Permission of instructor. Student news executives meet regularly with faculty to critique publication and broadcast product.

JOUR 4113 History of American Journalism

Prerequisite: Permission of instructor. A survey of the history of American journalism and mass media and their relationships to technical, economic, political, and other aspects of American society. May not be repeated for credit as JOUR 5113.

JOUR 4123 Laws of Communication

A study of the development of freedom of press and speech, laws of libel, contempt, privacy and copyright in their relation to press, radio, television, and films.

JOUR 4133 Television Program Production

Prerequisite: JOUR 3183 or 3193 or consent of instructor. Study and practice in writing, editing, and producing dramatic, musical and documentary programs for television, including experience in writing and editing scripts, making and editing videotape, and operating cameras and other studio equipment for non-news programs, with each student producing a program during the semester. One hour class, three hours laboratory.

JOUR 4143 Advanced Reporting

Prerequisites: JOUR 2143 and 3143 or permission of instructor. Study of advanced news gathering techniques and practice in researching and writing difficult types of stories.

JOUR 4153 Editorial, Column, and Review Writing

Study of and practice in writing editorials, columns, and reviews. Includes research and discussion of the function of opinion writing in the mass media.

JOUR(ART) 4163 Advanced Photography and Video

Prerequisite: JOUR(ART) 1163 or consent of instructor. An introduction to advanced photographic techniques including digital photography and nonlinear editing. Various historic and current theories of visual journalism provide a substantive base for the application of techniques.

JOUR 4173 Public Relations Project

Prerequisites: JOUR 3173, JOUR 3273, JOUR 4073, or consent of instructor. Planning, preparation and execution of a public relations program for a specific project.

JOUR 4193 Communication Research Methods

Introduction to the methodologies of behavioral science applied to communication research including design, measurement, data collection, and analysis. Explores the use of surveys, content analysis, focus groups, and experiments in studies of communication processes and effects.

JOUR 4243 Journalism Writing Seminar

A concentrated fundamentals writing course that deals with traditional techniques and various formats for journalistic writing such as editorials, feature stories, columns, reporting, press releases, and interviews.

JOUR 4411, 4421 Print Practicum

Students will learn practical skills in the areas of writing, layout and design and photography while working an assigned number of hours each week for the student newspaper.

JOUR 4811-4821 Broadcast Practicum

Practical work experience in the studios of KXRJ-FM and Tech television productions, including work as manager, producer, or director. Only four hours count for the journalism major.

JOUR 4911-4921 Multimedia Practicum

Practical work experience in the multimedia lab including work as Web news manager, producer, Web content director.

JOUR 4883 Mass Communication Theory

Prerequisites: 15 semester hours of Journalism. This course provides an examination of the major theories and domains of mass communication research, emphasizing mass media effects. Students are acquainted with the assumptions, propositions, and empirical research foundations of these theories. The course covers the historical evolution and recent trends in mass communication theory as well as the application of theories to specific contexts such as marketing or organizational communication.

JOUR 4951-4 Undergraduate Research in Journalism

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

JOUR 4991-4 Special Problems in Journalism

This course, for majors only, requires advanced approval by the instructor and is restricted to second semester juniors and seniors. It is designed to provide certain advanced students with further concentration in a particular area. One, two, three, or four hours may be taken as appropriate.

Latin

LAT 1013 Beginning Latin I

Instruction in the fundamentals necessary to read and write the language. Advanced placement and credit by examination are available to students who have previously studied Latin.

LAT 1023 Beginning Latin II

A continuation of LAT 1013.

LAT 2013 Intermediate Latin I

Prerequisite: LAT 1023 or equivalent. A study designed to continue the development of fundamental skills and to give a general reading knowledge of Latin and acquaintance with classical Latin literature, history, and philosophy.

LAT 2023 Intermediate Latin II

A continuation of LAT 2013.

LAT(GRK) 3001 Greek and Latin Scientific Terminology

The course is designed to assist students with their understanding of English words which have their roots in Greek or Latin. Students who in their course of study need to know specialized vocabulary, such as science, math, pre-med, pre-law and nursing majors, will find this course extremely helpful.

Library Media

LBMD 2001 Introduction to Library Resources

An introduction to the organization and function of resource collections, with practical experience in location, retrieval, and use of reference and research materials; emphasis placed on subject materials. Course will not count toward licensure.

Management

(Additional prerequisites for 3000- and 4000-level courses are listed in the College of Business section of this catalog.)

MGMT 2013 Management Productivity Tools

Prerequisites: COMS 1003 or BUAD 2003. A course designed to provide students with advanced training in the use of information technology for solving business problems. Students will work in groups on a variety of projects and with a variety of tools.

MGMT 3003 Management and Organizational Behavior

Each semester. Basic principles of management and organizational behavior including planning, organizing, leading, controlling, staffing, decision making, ethics, interpersonal influence, and group behavior; conflict management; job design; and organizational change and development.

MGMT 3103 Operations Management

Each semester. Prerequisites: MGMT 2013, BUAD 2053, and MGMT 3003. A study of the overall operations management task. Critical issues include its integration of market issues, the development of operations strategies, and the management of people. Specific attention is given to the design and development of services and products and the systems by which they are produced and delivered. Factors central to the operations management task include capacity, technology, scheduling and execution, quality, inventory, the significant role of managing the supply chain, and process and delivery system reliability and maintenance.

MGMT 3113 Managerial Process Analysis

This course is a study of the analysis, mapping, and improvement of business processes using standard symbols, popular software tools, metrics, and general systems theory. Examples of sample business processes and topics include customer service, sales management, scheduling, manufacturing, supply chain management, logistics, hiring/job search, process mapping diagrams, organizational charts, workflow and environment layout, cause and effect analysis, systems analysis and design, collection and analysis of process data, and optimization. Software tools are used for process diagramming, concept mapping, physical facilities layout, project planning and management, and data filtering and analysis.

MGMT 3123 Business Ethics

This course is an interdisciplinary study of business ethics and the social responsibility of business organizations in society. The course will consider professional and applied ethics, law and organizational behavior. The focus of the course is on the individual managerial decision making process in response to ethical issues arising in the business context. Students will explore the role of business in society; discuss general theories of ethics; explain and apply key ethical theories in business; and develop and defend their own ethical positions.

MGMT 4013 Management Information Systems

Each semester. Prerequisites: COMS 1003 or BUAD 2003, and BUAD 2053, MGMT 2013, MGMT 3003, and MKT 3043. A study of information processing, the systems concept, the analysis and design of information systems, and database hardware and software technology as they apply to producing information to be used in business decision making. Emphasis will be given to practical application for business.

MGMT 4023 Personnel/Human Resource Management

Prerequisite: MGMT 3003. A study of that function performed in organizations which facilitates the most effective use of people (employees) to achieve organizational and individual goals. Topics covered include the law and personnel/human resource management, personnel analysis, planning, and staffing; performance evaluation and compensation, training and developing of human resources; labor relations, employee safety and health; work scheduling; evaluation of personnel/human resources management.

MGMT 4033 Internship I in Management

Prerequisite: Permission of the Instructor, Department Head and Dean; Junior Standing; minimum 2.5 overall GPA. A supervised, practical experience providing undergraduate MGMT majors with a hands-on professional management/marketing experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A College of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make oral reports in the classroom, maintain an internship log, and prepare a final term paper. Note: Only three hours of internship may be used to satisfy the curriculum requirements for management or marketing electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

MGMT 4043 Internship II in Management

Prerequisite: Internship I, permission of the Instructor, Department Head and Dean; Junior Standing; minimum 2.5 overall GPA. To be taken after completion of Internship I. A supervised, practical experience providing undergraduate MGMT majors with a hands-on professional management/marketing experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A College of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make oral reports in the classroom, maintain an internship log, and prepare a final term paper. Note: Only three hours of internship may be used to satisfy the curriculum requirements for management or marketing electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

MGMT 4053 Small Business Management

Prerequisites: MGMT 3003, MKT 3043, and senior standing. Application of business management principles to the creation and operation of small-scale enterprises. Emphasis on the preparation and implementation of business plans for such enterprises.

MGMT 4063 Entrepreneurial Development

Prerequisite: approval from instructor. The course is designed to increase the students' understanding of critical entrepreneurial and venture creation concepts through practical applications and through textual readings. Specifically, students will take preliminary small business plans and develop and formalize plans that will be submitted for competition consideration at the annual Donald W. Reynolds Governor's Cup business plan competitions.

MGMT 4073 Special Topics in Management

Prerequisite: MGMT 3003. In-depth exploration of selected management topics. The primary topic will vary from offering to offering; thus, the course may be taken more than once.

MGMT 4083 Business Policy

Each semester. Prerequisites: Senior standing and completion of all junior-level College of Business core courses except FIN 3063 and MGMT 3103, which may be taken concurrently. As the capstone course in the College of Business core, this course examines the application of strategic management processes, including top management's role in situational analysis, strategy selection, strategy implementation, and strategic control, under conditions of uncertainty.

MGMT 4093 Human Behavior in Organizations

Prerequisite: MGMT 3003. A study of individual and group behavior in organizations. Topics covered include personality and individual differences, personal systems, values and ethics, perception, attribution theory, goal setting, reinforcement theory, theories of motivation and leadership, group systems, power and social influence, and organizational structure.

MGMT 4113 Managerial Issues in Electronic Commerce

Prerequisites: MGMT 2013, MGMT 3003, and MKT 3043. A study of managerial issues and strategies involved in Internet-based buying and selling activities. The course examines appropriate business models and best practices in generating revenue, market share, and profit from wholesaling and retailing activities in business-to-consumer, business-to-business, and consumer-to-consumer venues. Topics include initiation and management of electronic commerce operations, technological infrastructure and tools, marketing, customer relationship management, electronic payment, security, staffing, social impacts, ethics, regulation, and international markets.

MGMT 4203 Project Management

Prerequisites: COMS 1003, BUAD 2053, MGMT 3003, MGMT 4013, MKT 3043, or instructor approval. Project Management is studied from a practical perspective. In this course, students explore techniques of organizing the three main elements of project management: cost, schedule and scope, as well as how to manage the most important aspect of Project Management: PEOPLE. Students will learn to utilize software that aids in the visualization of the project management process. The emphasis of this special topic in management will be aimed toward an understanding of Project Management for future business leaders and engineers. The course will culminate with a month-long, graded, practical exercise with industry where students will be organized into teams or as individual developers and sent to explore all aspects of a problem, conduct a project initiation workshop, and then present a project management plan to the leadership of that participating industry.

MGMT 4213 Business Leadership

Prerequisites: MGMT 3003, MKT 3043, or instructor approval. The course is an overview of the concepts and issues associated with contemporary leadership. It outlines the challenges, methods, and responsibilities of leading in our society. It covers what every informed citizen should know about leading in a variety of settings: the processes, styles, and pitfalls. We will address leader development, and discuss ethical issues related to leading. Guest speakers and student presentations will provide real world contemporary experiences for comparison to the text materials. Students are expected to be active participants in class. The final paper will serve as a roadmap for leadership development for each student for the next ten years.

Marketing

(Additional prerequisites for 3000- and 4000-level courses are listed in the College of Business section of this catalog.)

MKT 3043 Principles of Marketing

Each semester. Marketing fundamentals, the ultimate consumer, the retailing and wholesaling systems, marketing functions, marketing policies, marketing costs, critical appraisal of marketing, marketing and the government.

MKT 3163 Consumer Behavior

Prerequisite: MKT 3043. A study of the development of consumer decision making processes and the factors which influence them. Psychological, sociological, economic, cultural, and situational factors are examined. Their impact on marketing formulation, both domestic and international, is emphasized.

MKT 4033 Internship in Marketing I

Prerequisite: Permission of the Instructor, Department Head and Dean; Junior Standing; minimum 2.5 overall GPA. A supervised, practical experience providing undergraduate MGMA majors with a hands-on professional management/marketing experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A College of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make oral reports in the classroom, maintain an internship log, and prepare a final term paper. Note: Only three hours of internship may be used to satisfy the curriculum requirements for management or marketing electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

MKT 4043 Internship II in Marketing

Prerequisite: Internship I, permission of the instructor, Department Head and Dean; Junior Standing; minimum 2.5 overall GPA. To be taken following completion of Internship I. A supervised, practical experience providing undergraduate MGMA majors with a hands-on professional management/marketing experience in a position relating to an area of career interest. The student will work in a local cooperating business establishment under the supervision of a member of management of that firm. A College of Business faculty member will observe and consult with the students and the management of the cooperating firm periodically during the period of the internship. Students will be required to make oral reports in the classroom, maintain an internship log, and prepare a final term paper. Note: Only three hours of internship may be used to satisfy the curriculum requirements for management or marketing electives. Additional hours may be used to satisfy the curriculum requirements for general electives.

MKT 4053 Sport and Event Marketing

Prerequisites: MKT 3043, or instructor approval. To apply marketing concepts to sporting, cultural, historical, and charitable activities and events. To examine the performance, production, and promotional segments of the sport and event markets.

MKT 4063 Advertising

Prerequisite: MKT 3043. The "how" and "why" of advertising: principal problems faced by advertisers and advertising agencies, approaches, policies, and procedures as related to successful marketing techniques.

MKT 4073 Service Marketing Management

Prerequisite: MKT 3043. The course offers an in-depth exploration of the differences between tangible goods and services, the problems created by those differences, and the ways in which marketing managers can overcome these problems. The primary focus of the course will be on differences in consumer evaluation processes between goods and services, and specific issues that marketers have to address when dealing with services.

MKT 4093 International Marketing

Prerequisite: MKT 3043. Analysis of opportunities, distinctive characteristics and emerging trends in foreign markets, including exploration of alternative methods and strategies for entering foreign markets; organizational planning and control; impact of social, cultural, economic and political differences; and problems of adapting American marketing concepts and methods.

MKT 4103 Special Topics in Marketing

Prerequisite: MKT 3043. In-depth exploration of selected marketing topics. The primary topic will vary from offering to offering, thus, the course may be taken more than once.

MKT 4143 Marketing Management

Fall. Prerequisites: MKT 3043, MGMT 3003, and senior standing. Advanced study of decisions facing a marketing executive. Topics covered include product planning, consumer behavior, promotion, sales management, and pricing.

MKT 4153 Marketing Research

Spring. Prerequisites: BUAD 2053, MKT 3043. A study of the development of the basic methodology in research design for primary and secondary data, including requirements for collection, analysis, editing, coding, and presentation of data to support marketing decisions.

Mathematics

(A grade of "C" or better must be earned in the course used to satisfy the general education mathematics requirement.)

MATH 0803 Beginning Algebra

Content of this course is as follows: the language of algebra, fundamental operations, signed numbers, equations and problem solving. The grade in the course will be computed in semester and cumulative grade point averages, but the course may not be used to satisfy general education requirements nor provide credit toward any degree. A student who makes a "D" or "F" in MATH 0803 must repeat the course in each subsequent semester until he or she earns a grade of "C" or better. Students who make a grade of "C" or better in MATH 0803 must enroll in MATH 0903 the following semester.

MATH 0903 Intermediate Algebra

Prerequisites: One unit of high school algebra, grade of 'C' or better in MATH 0803, or consent of the Mathematics Department. The purpose of this course is to prepare for college-level mathematics those students whose mathematics background is inadequate. Content of the course is fundamental operations, linear equations, special products and factoring, fractions, functions, graphs, and systems of linear equations. The grade in the course will be computed in semester and cumulative grade point averages, but the course may not be used to satisfy general education requirements nor provide credit toward any degree. A student who makes a "D" or "F" in MATH 0903 must repeat the course in each subsequent semester until he or she earns a grade of "C" or better.

MATH 1003 College Mathematics

Prerequisite: Score of 19 or above on the mathematics subscore of the Enhanced ACT, score of 460 or above on the quantitative portion of SAT, score of 41 or above on the quantitative portion of the COMPASS mathematics section, or make a grade of C or higher in Math 0903. The course focuses upon the mathematics of contemporary life. Topics include Planning and Scheduling schemes from Management Science, Data Analysis, Probability and Inference from Statistics, Voting Systems and Division Schemes from the science of Social Choice, and various Growth Models.

MATH 1103 Algebra for General Education

Prerequisite: Score of 19 or above on the mathematics portion of the ACTE exam, or score of 460 or above on the quantitative portion of SAT, or score of 41 or above on the COMPASS mathematics section, or grade of "C" or better in MATH 0903. Content of course will include data analysis through a study of regression equations, functions, including polynomial, rational, and exponential, variation, modeling, and systems of equations. May not be taken for credit after completion of MATH 1113 or any higher level mathematics course.

MATH 1113 College Algebra

Prerequisite: Score of 19 or above on the mathematics portion of the ACTE exam, or score of 460 or above on the quantitative portion of SAT, or score of 41 or above on the COMPASS mathematics section, or grade of "C" or better in MATH 0903. Exponents and radicals, introduction to quadratic equations, systems of equations involving quadratics, ratio, proportion, variation, progressions, the binomial theorem, inequalities, logarithms, and partial fractions. May not be taken for credit after completion of MATH 2703 or any higher level mathematics course.

MATH 1203 Plane Trigonometry

Prerequisite: MATH 1113 or consent of Mathematics Department. A study of the properties of the trigonometric functions and their graphs, solution of right and oblique triangles, formulas and identities, inverse functions, and trigonometric equations.

MATH 1914 Precalculus

Prerequisites: Completion of high school algebra I and II with a grade of 'C' or better and a score of 19 or above on the mathematics portion of the ACTE exam, or score of 460 or above on the quantitative portion of the SAT, or score of 41 or above on the COMPASS mathematics section, or MATH 1113 and MATH 1203, or a grade of 'C' or better in MATH 0903. This course is designed to provide additional mathematical background before enrolling in the calculus sequence.

MATH 2033 Mathematical Concepts I

Prerequisite: MATH 1113 or MATH 1103. For elementary education majors. Elementary set theory, numeration systems, elementary number theory and the real number system.

MATH 2043 Mathematical Concepts II

Prerequisite: MATH 2033. For elementary education majors. A continuation of MATH 2033, including a study of the elementary concepts of probability and statistics, and an informal study of geometry.

MATH 2163 Introduction to Statistical Methods

Prerequisite: MATH 1113 or consent of the instructor. Descriptive statistics, random variables, probability and sampling distributions, estimation, hypothesis testing, regression, analysis of variance, non-parametric techniques. May not be taken for credit after completion of MATH 3153.

MATH 2183 Statistical Process Control

Prerequisite: MATH 2163 or equivalent. This is a course in statistical process control using Deming's philosophy for the improvement of quality, productivity, and competitive position.

MATH 2243 Calculus for Business and Economics

Prerequisite: Completion of high school algebra I and II with a grade of 'C' or better and a score of 22 or higher on the mathematics portion of the ACTE exam or MATH 1113. An introduction to the concepts of differentiation and integration. Emphasis will be placed on applications of calculus in business, economics, accounting, social sciences, and life sciences. May not be taken for credit after completion of MATH 2914 or equivalent.

MATH 2703 Discrete Mathematics

Prerequisite: MATH 1113. A study of graph theory, trees, combinatorics, logic, and Boolean Algebra.

MATH 2914 Calculus I

Prerequisites: Math ACTE score of 24 or higher, or a grade of C or higher in MATH 1914 or MATH 1203 or consent of instructor. This is the first of two courses covering the calculus of functions of a single variable. The content covers differentiation of all single variable functions and introduces integration of functions.

MATH 2924 Calculus II

Prerequisite: MATH 2914 or equivalent. This is the second of two courses covering the calculus of functions of a single variable.

MATH 2934 Calculus III

Prerequisite: MATH 2924 or equivalent. This is the third course in the elementary calculus sequence. It covers the calculus of functions of several variables.

MATH 2981-3 Special Topics in Mathematics

Prerequisite: Math ACTE score of 22 or higher, or MATH 1113, or consent of instructor. This course will be offered on an "as-needed" basis to cover topics in mathematics that are not otherwise covered in the curriculum. The content and credit for this course will vary according to the interests and needs of the student. This course may be repeated for credit if the course content differs.

MATH 3003 Foundations of Number Systems

Prerequisite: MATH 2703. A brief review of elementary set theory, followed by the construction of the natural numbers, the integers, the rational numbers, the real numbers and the complex numbers accompanied by a development of the order and field properties.

MATH 3033 Methods of Teaching Elementary Mathematics

Prerequisite: MATH 2043 and admission to Stage II. A course on methods of teaching the mathematics of the elementary school using mathematical concepts and principles taught in these grades.

MATH 3123 College Geometry

Prerequisite: MATH 2924. A formal approach to plane geometry with coordinates; sets, points, lines, planes, distance, and coordinate systems, angles, congruence, parallelism, and similarity.

MATH 3153 Applied Statistics I

Prerequisite: MATH 2924. A balanced approach emphasizing both theory and applications will be taken. Topics include descriptive statistics, exploratory data analysis, probability and probability models, discrete and continuous random variables, confidence intervals, hypothesis testing, and control charts. Students will be required to collect data, use a current statistical software package to analyze the data, and make inferences based upon the data analysis as part of an individual and/or group project.

MATH 3203 Introduction to Analysis

Prerequisites: MATH 3003. A careful development of the real number system and the theory of calculus on the real line.

MATH 3243 Differential Equations I

Corequisite: MATH 2924. A study of differential equations of the first order; linear equations of higher order including the methods of undetermined coefficients and variation of parameters; linear equations with constant coefficients; special equations of order two and systems of linear first-order differential equations using matrices.

MATH 4003 Linear Algebra I

Prerequisite: MATH 2924. Matrices and matrix algebra, systems of linear equations, determinants, eigenvalues, eigenvectors, general vector spaces, linear transformations.

MATH 4033 Abstract Algebra I

Prerequisite: MATH 3003. A study of Groups and other algebraic structures. Topics include sub-groups, normal sub-groups, abelian groups, groups of permutations, homomorphisms, kernels, and range.

MATH 4103 Linear Algebra II

Prerequisite: MATH 4003 or the consent of the Department of Mathematics. A continuation of MATH 4003 with emphasis on abstract vector spaces, inner product spaces, linear transformations, kernel and range, and applications of linear algebra. MATH 5103 may not be taken for credit after completion of MATH 4103 or equivalent.

MATH 4113 History of Mathematics

Prerequisite: MATH 2934. A study of selected topics from the history and nature of mathematics from ancient to modern times. Emphasis will be placed on the historical development of mathematics through a study of biographies of prominent mathematicians and the evolution of some important mathematical concepts. The fundamental role of mathematics in the rise, maintenance, and extension modern civilization will be considered. MATH 5113 may not be taken for credit after completion of this course.

MATH 4123 Mathematical Modeling

Prerequisites: MATH 2703 and MATH 3243. This course provides an introduction to the mathematical modeling process and applies this process to problems that may be modeled with pre senior level mathematics. Emphasis will be placed on connections of mathematics to application areas such as business, industry, economics, physical sciences, biological sciences, medicine and social sciences.

MATH 4133 Abstract Algebra II

Prerequisite: MATH 4033. Groups, subgroups, homomorphisms, isomorphisms, complex numbers, finite groups.

MATH 4153 Applied Statistics II

Prerequisite: MATH 3153. This course is a continuation of MATH 3153 with emphasis on experimental design, analysis of variance, and multiple regression analysis. Students will be required to design and carry out an experiment, use a current statistical software package to analyze the data, and make inferences based upon the analysis.

MATH 4173 Advanced Biostatistics

Prerequisite: An introductory statistics course or permission of instructor. This course will include analysis of variance, one factor experiments, experimental design with two or more factors, linear and multiple regression analysis, and categorical data analysis.

MATH 4243 Differential Equations II

Prerequisites: MATH 3243 and MATH 4003 or consent of the instructor. A continuation of MATH 3243 with emphasis on higher order and systems of differential equations.

MATH 4253 Advanced Calculus I

Prerequisite: MATH 3203. The real numbers, the topology of cartesian spaces and convergence of continuous functions.

MATH 4263 Mathematical Statistics

Prerequisite: MATH 3153. This is an introductory course in mathematical statistics. Topics include distribution functions (both discrete and continuous), multivariate distributions, distributions of functions of random variables, and statistical inference.

MATH 4273 Complex Variables

Prerequisite: MATH 2934. An introduction to complex variables. This course will emphasize the subject matter and skills needed for applications of complex variables in science, engineering, and mathematics. Topics will include complex numbers, analytic functions, elementary functions of a complex variable, mapping by elementary functions, integrals, series, residues and poles and conformal mapping. MATH 5273 may not be taken for credit after completion of this course.

MATH 4283 Advanced Calculus II

Prerequisite: MATH 4253. Differentiation, integration and infinite series.

MATH 4293 Introductory Topology

Prerequisite: MATH 4253. Metric spaces, topological spaces, mappings, limit point, continuity, connectedness, and compactness. MATH 5293 may not be taken for credit after completion of this course.

MATH 4343 Introduction to Partial Differential Equations

Prerequisites: MATH 2934 and MATH 3243. This course is an introduction to partial differential equations with emphasis on applications to physical science and engineering. Analysis covers the equations of heat, wave, diffusion, Laplace, Dirichlet and Neumann equations. Course is suitable for senior level or first year graduate students in Mathematics, Physics, and Engineering.

MATH 4703 Special Methods in Mathematics

Prerequisites: SEED 2002 and junior standing or permission of the instructor. This course, designed for prospective junior and senior high mathematics teachers, will provide the student with knowledge of current research and practice in mathematics education, a setting in which to apply that knowledge, and the opportunity to assess their teaching performance and formulate a plan for improvement.

MATH 4772 Mathematics Teaching Practicum
A course designed to provide mathematics education majors with experience in teaching mathematics and assessing student performance.

MATH 4951-4 Undergraduate Research in Mathematics
On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

MATH 4991-4 Special Problems in Mathematics
The content and credit for this course will be designed to meet the needs of the student.

Mechanical Engineering

MCEG 1002 Engineering Graphics
General course in the most important types of engineering drawings. A foundation course in lettering, geometrical exercises, orthographic projections, including auxiliary views, sections, pictorial representation. The computer is introduced as a drafting tool. Lecture and laboratory four hours.

MCEG(ELEG) 1012 Introduction to Engineering
Prerequisite: MATH 1113 or any higher level mathematics course. An introductory course to acquaint students with the technical and social aspects of engineering, the analytic approach to problem solving, measurements and calculations, including application of computer techniques. Lecture one hour, laboratory two hours.

MCEG 2013 Statics
Prerequisites: MATH 2924 and PHYS 2114. Principles of statics, resultants, equilibrium, and analysis of force systems. Structure analysis, forces in space, friction, centroids, and moments of inertia. Lecture three hours.

MCEG 2023 Engineering Materials
Prerequisite: CHEM 2124. A study of the mechanical and physical properties, micro-structure, and the various testings of engineering materials (metals, plastics, woods, and concrete) from the viewpoint of manufacture and construction. Lecture three hours.

MCEG 2033 Dynamics
Prerequisites: MCEG 2013. Prerequisite or Corequisite: MATH 3243. A continuation of MCEG 2013. Study of problems of unbalanced force systems. Kinematics and kinetics of rigid bodies. Work and energy, impulse and momentum. Lecture three hours.

MCEG 2203 Computational Methods in Engineering
Prerequisite: MCEG 1012 and MATH 2914. An introduction to common computational methods, tools, and procedures used in the solution of common engineering problems. A standard solution methodology is introduced along with instruction in units systems, spreadsheet and calculator computations and the use of engineering software. Lecture two hours.

MCEG(ELEG) 3003 Engineering Modeling and Design
Prerequisites: COMS 2803 or MCEG 2203 and MATH 3243. Reduction of engineering systems to mathematical models; methods of analysis using computers; interpretation of numerical results; optimization of design variables. Examples are drawn from various engineering disciplines. Lecture three hours.

MCEG 3013 Mechanics of Materials
Prerequisite: MCEG 2013. Fundamental stress and strain relationships, torsion, shear and bending moments, stresses and deflections in beams; introduction to statically indeterminate beams, columns, combined stresses, and safety factors. Lecture three hours.

MCEG 3023 Manufacturing Processes
Prerequisites: MCEG 2023 and 3013. Morphological aspects of manufacturing processes, testing of engineering metals, metal working processes, metal forming processes, machining, non-destructive inspection methods, statistical process control, control charts, and total quality management concepts.

MCEG 3042 Metallurgy Laboratory
Corequisite: MCEG 3043. Laboratory experiments in heat treating, phase transformation, plastic deformation, work hardening and creep. Concepts and topics from MCEG 3043 are emphasized in the lab exercises. Failure analysis modes and examples are included. Lecture one hour, lab three hours.

MCEG 3043 Physical Metallurgy
Prerequisites: MCEG 2023, MCEG 3013, and MCEG 3313. This course provides the student with an in-depth background to the mechanisms and applications of dislocation motion, crystal plasticity, phase transformations and solidification processes. Common industrial and experimental processes are studied for both ferrous and non-ferrous materials. Lecture three hours.

MCEG 3313 Thermodynamics I
Prerequisites: MATH 2924 and PHYS 2114. An introduction to thermodynamics, including thermodynamic properties of pure substances, heat and work, the first and second laws of thermodynamics, and entropy with applications to power and refrigeration cycles. Lecture three hours.

MCEG 3403 Machine Dynamics
Prerequisite: MCEG 2033 and MATH 3243. The study of the relative motion of machine components, force systems applied to these components, the motions resulting from these forces, and their effect on machine design criteria. Lecture 3 hours.

MCEG 3413 Fundamentals of Mechanical Design
Prerequisites: MCEG 2033 and 3013. Analysis of machines and components through application of basic fundamentals and principles. Lecture three hours.

MCEG 3442 Mechanical Laboratory I
Prerequisites: MCEG 2023 and MCEG 3013. A study of the basic materials testing procedures and instrumentation. Emphasis will be placed on proper laboratory techniques including data collection, data reduction, and report preparation. Lecture one hour, laboratory three hours.

MCEG 3503 Basic Nuclear Engineering
Prerequisites: MATH 2924, CHEM 2124 and PHYS 2114. An introduction to atomic and nuclear processes and to nuclear science and engineering fundamentals, including the nature of nuclear radiation, the nuclear chain reaction, criticality, power reactor types, and applications of nuclear technology. Lecture three hours.

MCEG 3512 Radiation Detection Laboratory
Prerequisite: MATH 2914, CHEM 2124 or consent. A study of each of the common kinds of nuclear radiation, including the detection and analysis methods and applications to nondestructive assays. Use of computers in analyses. Lecture one hour, laboratory three hours.

MCEG 3523 (PHYS 3033) Radiation Health Physics
Prerequisites: MATH 2914, CHEM 2124, or consent. A study of the protection of individuals and population groups against the harmful effects of ionizing radiation. Included in the study is: (1) radiation detection and measurement, (2) relationships between exposure and biological damage, (3) radiation and the environment, (4) design criteria for processes, equipment, and facilities so that radiation exposure is minimized, and (5) environmental impact of nuclear power plants. Lecture three hours per week.

MCEG 3991-4 Special Problems in Engineering
Prerequisite: Minimum of three hours at the junior level in area of study. Individual or specialized study in advanced area under the direction of a faculty advisor.

MCEG(ELEG) 4202 Engineering Design
(MCEG majors) prerequisite: Senior standing and MCEG 3413. This course serves as the first part of a two course sequence in which the student completes a senior design project. Design methodologies and tools including real world design considerations such as environmental impact, engineering ethics, economics, safety, product costing and liability are introduced. Design for manufacture, project management, scheduling and proposal writing will be covered. Successful completion of this course shall require completion of a proposal for a senior design project being accepted by the faculty design project review process.

MCEG 4323 Power Plant Systems
Prerequisites: MCEG 3313, MCEG 4403 or consent of instructor. A study of the design and operation of steam-electric power plant components and systems. Fossil and renewable energy plants are emphasized. Lecture three hours.

MCEG 4332 Thermal Systems Laboratory
Prerequisites: MCEG 3313, 4403.
Corequisites: MCEG 4433, 4443.
Advanced laboratory experiments in heat transfer and thermal systems. Conduction, convection and radiation heat transfer phenomena, power and refrigeration cycle operation, psychrometrics. Lecture one hour, laboratory three hours.

MCEG 4343 Internal Combustion Engines
Prerequisites: MCEG 3313 and MCEG 4403. A study of the operating and design principles of internal combustion engines. The course will cover combustion cycles, emissions, and performance analysis and testing. Lecture three hours with lab exercises.

MCEG 4403 Mechanics of Fluids and Hydraulics
Prerequisites: MCEG 2033 and 3313. A study of statics and dynamics of incompressible fluids. Major topics include the basic fluid flow concepts of continuity, energy and momentum, dimensional analysis, viscosity, laminar and turbulent flows, and flow in pipes. Lecture three hours.

MCEG 4413 Finite Element Analysis
Prerequisites: ELEG 2103, MCEG(ELEG)3003, and MCEG 3013. Introduction to approximate methods using finite elements. Development of the finite element method using variational formulations. Applications include machine design, mechanical vibrations, heat transfer, fluid flow and electromagnetics.

MCEG 4423 Machine Component Design
Prerequisite: MCEG 3413 and MATH 3153. Design and analysis of specific machine components including gears, clutches, springs, and bearings. Lecture three hours.

MCEG 4433 Thermodynamics II
Prerequisites: MATH 2934, 3243 and MCEG 3313. A continuation of MCEG 3313. The study of thermodynamics is extended to the investigation of relations for simple substances, non-reacting mixtures, reacting mixtures, chemical reactions and a study of availability analysis. Power and refrigeration cycles are studied in more depth. Lecture three hours.

MCEG 4442 Mechanical Laboratory II
Prerequisites: MCEG 3442 and 4403. A study of fluid mechanics, thermodynamics, and heat transfer experimentation techniques. Laboratory projects will be assigned with student responsibility for procedure development and test program implementation. Formal laboratory reports will be required. Lecture one hour, laboratory three hours.

MCEG 4443 Heat Transfer
Prerequisites: MCEG 3313 and MCEG 4403. Basic thermal energy transport processes, conduction, convection, and radiation, and the mathematical analysis of systems involving these processes in steady-state and time-dependent cases. Lecture three hours.

MCEG 4453 Energy Management
Prerequisite: MCEG 3313. Energy management in commercial building and industrial plants. Utility rate structures. Sources of primary energy. Energy conversion devices. Prime movers of energy. Heat. Electricity. Lighting. HVAC Equipment. Building envelope. Electric motors. Estimating energy savings. Economic justification. Energy auditing.

MCEG 4463 Heating, Ventilating, and Air-Conditioning Design
Prerequisites: MCEG 3313 or permission of instructor. A study of the principles of human thermal comfort including applied psychometrics and air-conditioning processes. Fundamentals of analysis of heating and cooling loads and design of HVAC systems. Lecture 3 hours.

MCEG 4473 Mechanical Vibrations
Prerequisites: MCEG 2033, MATH 3243. The study of free and forced vibration of single degree-of-freedom systems, response to harmonic, periodic and non-periodic excitations. Multi-degree-of-freedom systems and matrix methods are explored. Computational techniques for predicting system response continuous systems are introduced. Lecture three hours.

MCEG 4493 Mechanical Design Project
Prerequisite: MCEG(ELEG) 3003, 4202, MCEG 4423, senior standing and consent of instructor. An independent or group project in mechanical engineering design. Where appropriate, a team approach will be employed. Emphasis will be placed on designing a mechanical system or sub-system with due regard for: safety, environmental concerns, reliability, longevity, ease of manufacturing, maintainability, and cost effectiveness. Both a written and oral report are required.

MCEG 4503 Nuclear Power Plants I
Prerequisites: MCEG 3503, MCEG 4403. A study of the various types of nuclear reactor plants including the methods used for energy conversion. Relative advantages/disadvantages of various plant types investigated. Lecture three hours.

MCEG(ELEG) 4991-4 Special Problems in Engineering
Prerequisite: Minimum of three hours at the junior level in area of study. Individual study in advanced area of the student's choice under the direction of a faculty advisor.

Medical Technology

(Medical Technology courses are offered at affiliated institutions.)

MEDT 4012-3 Clinical Microscopy and Body Fluids
Use of the microscope in laboratory diagnostic procedures and introduction to body fluid chemistry, particularly blood, urine and spinal fluids. Emphasis on pathological conditions resulting from abnormal concentrations of substances.

MEDT 4029 Hematology
Consideration of typical and atypical medical laboratory procedures in hematology with emphasis on principles, methodology, sources of error, and clinical application. Supervised training in standard and special laboratory techniques.

MEDT 4035 Immuno-hematology

Consideration of typical and atypical medical laboratory procedures in immuno-hematology and blood-banking with emphasis on principles, methodology sources of error, and clinical application. Supervised training in standard and special laboratory techniques.

MEDT 4048-9 Clinical Chemistry and Instrumentation

Consideration of methods of determining chemical composition of body fluids and analysis using standard and special laboratory instruments. Study of design, construction, and operation of instruments such as balances, centrifuges, pH meters, autoanalyzers, null-balances, others.

MEDT 4056-7 Microbiology

Consideration of typical and atypical medical laboratory procedures in microbiology with emphasis on diagnostic medical bacteriology virology, and mycology. Supervised training in standard and special laboratory techniques.

MEDT 4064 Parasitology

Consideration of typical and atypical medical laboratory procedures in parasitology with emphasis on methodology and clinical application. Supervised training in standard and special laboratory techniques.

MEDT 4073 Serology

Consideration of typical and atypical medical laboratory procedures in serology with emphasis on methodology, sources of error, and clinical application. Supervised training in standard and special laboratory techniques.

MEDT 4081-2 Special Topics

Subject matter may include the following: hospital orientation, laboratory management, radioisotope techniques, laboratory safety, special projects, special techniques, quality control procedures, and seminars on various subjects deemed necessary by hospital personnel.

Middle Level Education

MLED 2003 Introduction to Education

Prerequisite: Stage I course and will be taken before admittance to the Middle Level Teacher Education Program. Introduction to philosophy of education and to the concept of education as a career with an emphasis on middle-level education. The format will include a weekly lecture and on-site field experiences in a public school setting. This course will also provide potential middle-level teachers with an overview of the social and historical aspect of the American Education System.

MLED 3012 Research Foundations

Prerequisite: Admission of Stage II to the Middle Level Teacher Education Program. Presentation of the knowledge base and practice in the skills needed to locate educational research information; analyze, synthesize, and evaluate the compiled materials; and write a professional research report based on the composite findings.

MLED 3024 Psychological Foundations for the Nature and Needs of Middle Level Students

Prerequisite: Admission to Stage II of the Middle Level Teacher Education Program. General principles of the physical, social, emotional, intellectual, and moral development of early adolescents and the developmental implications on curriculum and instruction, learning, the learner's potentialities with attention to individual differences, the environment of effective learning, application of psychology to educational problems.

MLED 3034 Literacy Development in the Middle Grades

Prerequisite: Admission to Stage II of the Middle Level Teacher Program. Presentation of the knowledge base and methodology needed to guide students in the middle grades toward competency and maturity as readers and writers and practice in the teaching/learning strategies related to reading in all content area disciplines.

MLED 3041 School to Home Communication

Prerequisite: Admission to Stage II of the Middle Level Teacher Education Program. Presentation of methods of communication between the home and school for the classroom teacher will be explored. The use of classroom management software for school reports, student information sheets, newsletters, electronic mail, and letters to home as well as telephone skills will be practice. Exploration of the use of community resources and evaluation as related to meeting the needs of middle level students and families.

MLED 3062 Tests & Educational Measurements

Prerequisite: Admission to Stage II of the Middle Level Program. A survey of test theory with particular emphasis upon the use of assessment techniques in the middle level classroom as an educational decision-making tool.

MLED 3072 Diversity in the Classroom

Prerequisite: Admission to Stage II of the Middle Level Teacher Education Program. A study of the major areas of exceptionalities including the learning disabled, mentally retarded, physically handicapped, and the gifted, and their special needs in a school program.

MLED 3102 Reading Through Literature in the Middle Ages

Prerequisite: Admission to Stage II of the Middle Level Teacher Education Program. A study of the development and source of literature for the middle childhood/early adolescent student. Emphasis will be on integrating literature across the curriculum and on methods of encouraging reading as a lifelong pleasurable pursuit.

MLED 4004 Middle Level Curriculum and Pedagogy

Prerequisite: Admission to Stage II of the Middle Level Teacher Program. A study of the developmental curriculum, instruction and pedagogy for teaching the middle level student. Emphasis will be on an interdisciplinary approach to curriculum design.

MLED 4013 Teaching the Young Adolescent

Hold ECED P-4 licensure and passing Praxis II score on Middle Childhood Generalist test or permission of instructor. A study of developmentally appropriate curriculum, instruction and pedagogy for teaching the young adolescent with understanding of the historical perspective of middle schools and programs.

MLED 4023 Guided Field Experiences

Prerequisite: Admission to Stage II of the Middle Level Teacher Education Program and concurrent enrollment in MLED 3012 and MLED 3034. MLED 4023 Guided Field Experiences is a series of 45 hours of observation, participation, and teaching experiences ranging from individual to large group settings conducted in selected middle level settings designed to prepare the teacher candidate for a smooth transition to internship in a clinical setting. A survey of school law designed to give teacher candidates an awareness of legal rights and responsibilities of teachers, students, and public schools is presented at the beginning of the course before students begin practicum hours.

MLED 4033 Young Adolescent Growth and Development

Prerequisite: Hold ECED P-4 licensure and passing Praxis II score on Middle Childhood Generalist test or permission of instructor. Prospective middle level teachers will study the educational implications of the developmental period of the young adolescent. An emphasis is placed on developmental characteristics of the young adolescent highlighting the role of the middle level teacher in promoting the healthy development of the young adolescent.

MLED 4043 Diversity in the Middle Level Classroom

Prerequisite: Hold ECED P-4 licensure and passing Praxis II score on Middle Childhood Generalist test or permission of instructor. Prospective middle level teachers will study the educational implications of the economic, cultural, racial and intellectually diverse middle level classroom.

MLED 4912 Internship

(Twelve hour course.) Prerequisites: Admission to and Internship. MLED 4912 Internship is a minimum of fifteen weeks of reflective clinical internship at the middle level. In a select setting under supervision of experienced middle level professionals, teacher candidates will prepare, facilitate, and evaluate an appropriate curriculum experience for instruction of the early adolescent. Fee \$100.00.

Military Science - ROTC

(For further information concerning military science courses, contact SSG Scott Wood at (479) 498-6069.)

MS 1101 Leadership I

Fall. A study of the importance of communications, decision making, and the understanding of human behavior as it affects leadership situations. Includes introduction to basic military skills.

MS 1111 Leadership II

Spring. Introduction to leadership and development and basic tactical skills. Includes introduction to basic military skills.

MS 2312 Military Organization/Tactics I

Fall. Emphasis on the development of effective leadership skills, basic rifle marksmanship training, and on understanding how the leadership process works in organizational situations.

MS 2402 Military Organization/Tactics II

Spring. Continuation of leadership development training from MS 2312. Introduction to practical work in map reading, CPR course and basic lifesaving steps for first aid.

MS 3503 Advanced Leadership and Tactics I

Fall. An in-depth study of unit tactics and related individual skills, advanced map reading and their practical application. Emphasis on person to person leadership skill development.

MS 3603 Advanced Leadership and Tactics II

Spring. A continuation of MS 3503.

MS 4013 United States Military History

A study of the American military from its colonial origins to the present, including the development of the military establishment and its relationship with American society.

MS 4703 Applied Leadership and Management I

Fall. A study of command and staff functions and practical exercises in planning, organizing, and supervising. Students in this course plan and administer all activities of the cadet corps. Emphasis is placed on leadership and management of larger organizations.

MS 4803 Applied Leadership and Management II

Spring. A continuation of MS 4703.

MS 4903 Advanced Officership I

Prerequisite: MS 3503 or MS 4703 and approval of the Professor of Military Science. Advanced Officership I is a special problems course on professional military related topics. The course will emphasize personal and professional goals for officers and related tactics involved in military history.

MS 4913 Advanced Officership II

Prerequisite: MS 3503 or MS 4703 and approval of the Professor of Military Science. Advanced Officership II is a special problems course on professional military topics specifically related to the branches of the US Army. The course will emphasize personal and professional goals for each officer by enhancing their knowledge of their assigned branch and component.

Military Leadership Laboratory

Prerequisite: Enrollment in the appropriate level of the Military Science Program. Emphasis is on continued instruction and practical application of military fundamentals learned in the classroom. Course is designed to develop individual character, leadership abilities, and other attributes essential to an officer and a leader.

Museum**MUSM(ANTH, HIST) 4403 Interpretation/ Education through Museum Methods**

Prerequisites: Senior or Graduate standing, or permission of instructor. Museum perspectives and approaches to care and interpretation of cultural resources, including interpretive techniques of exhibit and education-outreach materials, and integrating museum interpretation/ education into public school and general public programming. Class projects focus on special problems for managing interpretive materials in a museum setting.

MUSM 4951-4 Undergraduate Research in Museum

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

Music**MUS 1000, 3000 Recital Attendance**

Offered on a pass/fail basis. Students are required to attend a specified number of recitals each semester and must pass at least six semesters to receive the B.A. degree in music or bachelor of music education.

MUS 1151 Class Guitar I

For music majors. Introductory class instruction in folk and popular styles of guitar playing with emphasis on guitar as a teaching tool for classroom music instruction.

MUS 1241 Italian Diction

For vocal majors. Study of the rules of pronunciation for Italian lyric diction. Must be taken concurrently with MUS 1232.

MUS 1321 Jazz Piano

As needed. Prerequisites: MUS 1713, MUS 1201 or 1441, or instructor approval. Materials and practices for typical jazz keyboard playing. One hour per week.

MUS 1431 Class Piano

Non-music majors. For students who have little or no music reading skills, this course concentrates on basic piano skills while learning to read music. At the end of the course students will play pieces using a chord-based approach in several keys and styles. \$10 fee.

MUS 1441 Class Piano I, II, III, and IV

For music majors. A development of the fundamentals skills of the piano, emphasizing those aspects most useful to non-piano majors. A knowledge of chords is stressed, as is sight reading, improvising, playing in all keys and harmonizing melodies. The second year of class piano extends these skills adding the reading of multiple score parts, modulation, harmonizing with secondary chords, improvising in various composers' styles, playing a wide variety of literature, and accompanying. \$10 fee.

MUS 1703 Music Fundamentals

As needed. Music fundamentals to be included are reading pitch and rhythm, basic notation, rudimentary music theory information about scales, harmony, dynamics, tempo; playing a melody instrument; rudimentary ear training, music composition, and music listening skills.

MUS 1713, 1723 Theory I and II

To be taken concurrently with MUS 1731, 1741. Study of scales, triads, seventh chords, diatonic harmonies, simple modulation. Introduction to small forms.

MUS 1731, 1741 Ear Training I and II

The elements of music fundamentals, both written and aural.

MUS 2003 Introduction to Music

Prerequisite: None. An overall view of music history from Medieval to Contemporary times with a focus on relating musical happenings and concepts to the other arts.

MUS 2201 Accompanying Seminar

For piano majors, or by permission of instructor. Development of basic accompanying techniques. Class coaching and presentation one hour weekly, plus assigned accompanying responsibilities in a variety of media. May be repeated three times.

MUS 2241 German Diction

For vocal majors. Study of the rules of pronunciation for German lyric diction. Must be taken concurrently with MUS 1232.

MUS 2251 French Diction

For vocal majors. Study of the rules of pronunciation for French lyric diction. Must be taken concurrently with MUS 1232.

MUS 2441 Class Voice

(Music majors). Fall. Development of basic vocal techniques through group participation and solo singing. Emphasis is placed on understanding of vocal pedagogy. Supervised practice two hours per week.

MUS 2451 Class Voice

(Non-music majors). Fall. Development of basic vocal techniques through group participation and solo singing. Supervised practice two hours per week.

MUS 2713, 2723 Theory III and IV

To be taken concurrently with MUS 2731, 2741. More advanced harmonic concepts, modulation, chromatic harmonies. Further study of larger forms.

MUS 2731, 2741 Ear Training III and IV

Further work in more advanced ear training and sight singing.

MUS 3151 Class Guitar II

For music majors. Prerequisite: MUS 1151 or permission of instructor. Advanced class instruction in guitar playing with emphasis on guitar as a teaching tool for classroom music instruction.

MUS 3281 Secondary Instrumental Methods and Materials I

Laboratory experience in conducting and performance of materials appropriate to teaching band in the public school.

MUS 3321 Practice of Improvisation

Prerequisite: successful completion of MUS 3332 or instructor approval. Laboratory experience in improvisation in all jazz styles. This course may be repeated for credit.

MUS 3322 Theory of Improvisation (Jazz)

Prerequisite: MUS 1713, 1723, 1441, and/or instructor approval. Music theory, materials and practices for improvising or extemporaneous playing. One-hour class, two-hour laboratory per week. May not be repeated for credit. May not be taken for credit after completion of MUS 3332.

MUS 3332 Theory of Improvisation (Jazz)

Prerequisite: Successful completion of MUS 3322. Advanced music theory, materials and practices for improvising or extemporaneous playing. One-hour class, two-hour laboratory per week. May not be repeated for credit.

MUS 3401 Brass Instruments

For music majors. A study of the instruments of the brass family to the extent that scales and grade one and two solos can be played on selected instruments. Class two hours, practice two hours.

MUS 3421 Woodwind Instruments, Double Reeds

For music majors. A study of playing and teaching techniques of the woodwind family (oboe, bassoon). Playing of selected instruments will be developed through major scales and grade one and two solos or methods.

MUS 3431 Woodwind Instruments, Single Reeds

For music majors. A study of playing and teaching techniques of the woodwind family (flute, clarinet, saxophone). Playing of selected instruments will be developed through major scales and grade one and two solos or methods.

MUS 3441 Instrumental Concepts

For vocal and keyboard majors. A study designed to give non-instrumental music education majors functional knowledge of band and orchestral instruments.

MUS 3442 Piano Pedagogy

Spring. A study of pedagogical principles involved in the teaching of private and class piano, with emphasis on outside reading, class discussion, and observation of actual lessons and classes.

MUS 3481 Stringed Instruments

For music majors only. A study of instruments of the string family (violin, viola, cello, and string bass) with emphasis on the fundamentals of good tone production and bowing techniques to the extent that scales and grade one and two orchestra music can be played on selected instruments.

MUS 3632 Survey of Music Theatre

As needed. Survey of Music Theatre is "A historical survey of the literature, content and performances practices of music theatre." These proficiencies will be surveyed in terms of broadly defined chronological and style periods.

MUS 3692 History of Music III

Prerequisite: MUS 2723, music major or permission of instructor. A study of 20th century music. Includes one unit of non-western music.

MUS 3702 Music Educational Technology

For music majors with junior standing only. Applications of Technology in Music Education. An overview of current technologies to enhance music instruction, assessment, and productivity by the music educator.

MUS 3712 Counterpoint

As needed. Prerequisite: MUS 2723. The contrapuntal techniques and forms of the Baroque era. Analysis of Canons, two-and-three-part Inventions, and fugues of J.S. Bach plus written exercises in two-voice counterpoint.

MUS 3762 Instrumental and Choral Arranging

An introduction to scoring for instrumental and choral groups to meet the needs of adapting music to meet the needs and ability levels of school performing groups and classroom situations.

MUS 3771-2, 4771-2 Composition

As needed. Prerequisites: 16 hours of music theory and senior standing or consent of instructor. Offered as demand warrants. The study of basic compositional techniques of twentieth-century works and completion of composition project.

MUS 3773 History of Music I

Fall. Prerequisite: MUS 2723 (Theory IV) or permission of instructor. A study of Western Art music from ancient civilization to A.D. 1750.

MUS 3783 History of Music II

Prerequisite: MUS 2723 or permission of instructor. A study of classical and 19th century music.

MUS 3802 Principles of Conducting

Fall. Principles and practices of conducting; a study of music terminology and transpositions; development of baton techniques based on the practice of outstanding choral and instrumental conductors.

MUS 3821 Secondary Choral Methods and Materials I

Choral conducting techniques, tone and diction styles and interpretation, rehearsal techniques, programs and concerts, planning and organization, and service information. Conducting of student ensembles and organizations. Methods and materials I will include review of literature for large and small ensembles appropriate for middle school, junior high, and smaller high school teaching situations.

MUS 3853 Music in the Elementary Classroom

Prerequisites: MUS 2723, successful completion of Keyboard Exit Exam, and SEED 2002 or permission of instructor. A study of current practices, methods, and materials for teaching general music to elementary school children with emphasis on curriculum development and diversity in the classroom.

MUS 4001 Senior Recital

Prerequisite: Six semesters of major applied study. Required of all music education majors.

MUS 4201 Accompanying Seminar

Prerequisite: Two semesters of MUS 2201 and/or permission of instructor. Advanced accompanying techniques for piano majors. Class coaching and presentation one hour weekly, plus assigned responsibilities in a variety of media. May be repeated three times. May substitute for required 3000 level hour of major ensemble enrollment with assignment by instructor to successfully accompany major ensemble or recital.

MUS 4281 Secondary Instrumental Methods and Materials II

Laboratory experience in conducting and performance of materials appropriate to teaching band in the public school.

MUS 4461 Percussion Instruments

For music majors. A study of the instruments of the percussion family to the extent that scales and/or rudiments and grade one and two solos can be played on selected instruments. Designed as a practical preparation for public school teachers. Two hours weekly.

MUS 4701 Special Methods in Music

Spring. Prerequisites: Admission to Stage II of the Teacher Education program. Intensive on-campus exploration of the principles of curriculum construction, teaching methods, use of community resources, evaluation as related to teaching music, and dealing with diversity in the classroom.

MUS 4712 Form and Analysis

Fall. Prerequisite: MUS 2723. A study of the standard forms of the Classical period with emphasis on instrumental forms and genres developed in the period 1750-1825 and the continuation and expansion of those forms in the nineteenth century.

MUS 4803 History of American Music: Jazz and Folk

Open to all students. An in-depth study of folk music and the relationship between these forms and American life. Research, aural activity, and analysis are used to explore a variety of musical forms, composers, and performers.

MUS 4811 Keyboard Literature

Fall. A survey of piano or organ literature with emphasis on historical development, analysis of selected compositions, and listings of suitable pedagogical materials.

MUS 4821 Secondary Choral Methods and Materials II

Choral conducting techniques, tone and diction styles and interpretation, rehearsal techniques, programs and concerts, planning and organization, and service information. Conducting of student ensembles and organizations. Methods and materials II will include a review of historically important choral works and the music of the master composers of each musical epoch. Sight singing methods for group sight reading will be reviewed.

MUS 4832 Vocal Solo Literature/Pedagogy

Spring. Prerequisite: Junior standing. Introduction to and comparison of vocal solo literature and the teaching of vocal technique.

MUS 4842 Survey of Opera

As needed. A history of opera including events which helped in the creation of this art form. Course will include major developments beginning with the Italians and incorporating the French, English and German contributions and styles.

MUS 4853 Music of the World's Peoples

A survey of predominantly non-Western world music cultures with attention to sonic structures, musicians, musical instruments, and socio-cultural contexts of music making. Open to students in all majors. Listening emphasized.

MUS 4881-3 Workshops in Music

As needed. Prerequisite: Permission of instructor. Course with variable credit designed to meet specific needs of participants. Each credit hour will require fifteen clock hours of instruction.

MUS 4951-4 Undergraduate Research in Music

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

MUS 4972 Marching Band Techniques

Fall. For music majors only. A study of the problems, practices, techniques, and the organization and administration of the marching band.

MUS 4991-4 Special Problems in Music

As needed. Prerequisites: Senior standing and permission of the instructor. Additional work in an area of the student's choice under the direction of the faculty member competent in that area.

Musical Performance

Musical performance includes private study, class piano, class voice, and ensembles. In numbering applied music courses, the first digit, numeral 1, is used for freshman and sophomore level courses; the numeral 3 for junior and senior-level courses. The second and third digits indicate applied concentration area (e.g. 20 = piano) and the final digit indicates hours of semester credit.

Applied Music (private instruction) requires permission of the department head and is required of all music majors. Applied music students may be assigned participation in designated ensembles in addition to required ensembles. Ensembles are given in the curricula in Music and Music Education.

To qualify for three hours per semester, a student must have a minimum 3.50 cumulative GPA in applied music, a 3.00 cumulative GPA in total hours, junior standing and recommendation of the instructor.

MUS 1-1-2, 3-1-3, Applied Music. Use appropriate numbers to indicate applied study area.

Trumpet..... 1001-2, 3001-3
Violin..... 1101-2, 3101-3
French Horn 1011-2, 3011-3
Viola 1111-2, 3111-3
Trombone 1021-2, 3021-3
Cello 1121-2, 3121-3
Euphonium 1031-2, 3031-3

String Bass	1131-2, 3131-3
Tuba	1041-2, 3041-3
Percussion	1141-2, 3141-3
Clarinet	1051-2, 3051-3
Piano	1201-2, 3201-3
Oboe	1061-2, 3061-3
Harpsichord	1211-2, 3211-3
Flute	1071-2, 3071-3
Organ	1221-2, 3221-3
Saxophone	1081-2, 3081-3
Voice	1231-2, 3231-3
Bassoon	1091-2, 3091-3

MUS 1601, 3601, Orchestral Repertoire

Prerequisite: permission of instructor. A study of the landmarks of orchestral repertoire for winds and percussion sections through the preparation and rehearsal of the literature. Each course may be repeated three times.

Music Ensembles

In numbering ensemble courses, the first digit, numeral 1, is used for freshman and sophomore level courses, the numeral 3 for junior and senior-level courses.

MUS 1301, 3301 Opera Workshop

Prerequisite: Permission of instructor. The course of study will involve selected scenes from standard opera literature prepared for dramatic presentation. Research will be required pertaining to the historical setting, appropriate costumes, and mannerisms of the period being studied. Staging techniques and set building will be included as deemed necessary to each presentation.

MUS 1311, 3311 Jazz Ensemble

Membership selected by audition. Study and performance of big band jazz styles from the 1930's to present.

MUS 1501, 3501 Band

Open to students who can satisfy audition requirements. Marching Band, fall semester, or permission of instructor is a prerequisite for Concert Band, spring semester. Fall semester stresses marching band. Spring semester stresses symphonic and concert bands in the study and performance of quality literature.

MUS 1511, 3511 Brass Choir

Membership selected by audition. Study and performance of representative brass literature. Rehearsal 3 hours weekly.

MUS 1521, 3521 Woodwind Ensembles

Open to all students. Membership selected by audition. Two hours weekly.

MUS 1531, 3531 Brass Ensembles

Open to all students. Membership selected by audition. Two hours weekly.

MUS 1541, 3541 Percussion Ensembles

Open to all students. Membership selected by audition. Two hours weekly.

MUS 1551, 3551 String Ensembles

Open to all students. Membership selected by audition. Two hours weekly.

MUS 1571, 3571 University Choir

Open to all students. A select vocal group of approximately sixty members selected by audition. Study and performance of choral literature of all periods.

MUS 1581, 3581 Chamber Choir

Open to all students by audition. A select choral ensemble of approximately sixteen voices specializing in the performance of chamber choral music from all historical periods. Two or three concerts are presented on campus each semester. Off-campus performances include tours and public relations functions for the university.

MUS 1591, 3591 Small Vocal Ensembles

As needed. Open to all students. Participation in the various ensemble groups such as trios and quartets: study of selected music literature. Membership selected by audition. Two hours weekly.

MUS 1611, 3611 Music Theatre Workshop

Prerequisite: permission of instructor. Selected songs from standard musical theatre literature will be prepared for public performance with an emphasis on popular professional performance techniques. Credit will be given for one leading part or for a series of supporting parts. Two hours weekly.

MUS 1621, 3621 Music Theatre Practicum

As needed. Prerequisite: permission of instructor. Credit will be given for participation that results in a public performance of a major production. Vocal, instrumental, and/or audiovisual technological participation will be accepted. A minimum of 28 hours participation is required.

MUS 1671, 3671 University-Community Choir

Evening rehearsals. Open to all students and other interested persons. Assignments made on the basis of voice classification. Study and performance of choral literature of all historical periods. One and one-half hours weekly.

MUS 1681, 3681 Concert Chorale

Open to all students by audition. A select choral ensemble of choral music from all historical periods. Two or three major concerts are presented each semester.

MUS 4581 Vocal Ensembles

As needed. Membership selected by audition. Study and performance of representative vocal literature. Ensembles may be small ensembles such as trios or quartets, or may be large ensembles such as choir or chamber choir. Six hours weekly.

Nursing

NUR 1001 Orientation to Nursing

A one hour elective course for students interested in pursuing nursing as a professional career. The student is introduced to the history of nursing, issues and trends, basic nursing education, advanced education for nurses, and nursing career opportunities. Students interested in nursing or a career in science are encouraged to take this course during the fall semester of their freshman year. Lecture 1 hour.

NUR 2023 Introduction to Professional Nursing

Summer or fall prior to Junior year. Prerequisite: Permission of Admission and Progression Committee. A non-clinical, three-hour course which introduces the student to selected basic concepts in professional nursing. Purpose of the course is to introduce nursing concepts to nursing majors. The course focuses on nursing as a caring profession, nurses' roles and functions, ethics, standards, legal aspects, holism, wellness, health care settings, communication, teaching/learning, critical thinking, and the nursing process. The Conceptual Framework and Philosophy of Tech's Department of Nursing will be explored. Lecture 3 hours. \$87 testing fee.

NUR 2303 Nutrition

Principles of normal nutrition at all stages of the life cycle are emphasized. Growth and development needs are incorporated into the maintenance, restoration of nutritional health, and in the prevention of nutritional deficit. Exploration is conducted of the social, religious, and cultural factors which affect the family's nutritional health. Lecture 3 hours.

NUR 3003 Alternative Therapies

Prerequisite: Admission to Upper Division Nursing or consent of instructor. This course focuses on the principles and concepts of alternative therapies for clients of all ages in a variety of health care settings. Alternative therapies are explored in relationship to conventional medicine in the prevention of negative health conditions, promotion of health practices, and support and restoration of wellness.

NUR 3102 Nursing Skills Theory for Medical Interpreters I

Summer and Fall. Prerequisite: Open to students majoring in Spanish with a concentration in Medical Interpretation. The course provides the student with theory of basic psychomotor and math nursing skills. Lecture 2 hours.

NUR 3103 Nursing Skills I

Summer or fall session prior to junior year. Prerequisite: Admission into upper-level junior nursing courses. The course provides the student with theory and guided practice of basic psychomotor and math nursing skills in a multimedia simulated laboratory setting. \$60 course fee. Lecture 2 hours. Laboratory 3 hours equal to one credit hour.

NUR 3204 Theories and Concepts in Nursing I

Prerequisite: Admission into upper-level junior nursing courses. Corequisites: NUR 3513 and 3404. This course is an introduction to the cognitive framework of the curriculum which emphasizes holistic man, environment, and nursing as an interacting system. The course focuses on bio-psycho-social and spiritual behaviors as indicators of health throughout the life cycle. The nursing process and the scientific method of problem solving are presented as systematic approaches to nursing care. Further emphasis is placed on assessment of health needs and health practices of individuals in structured episodic health care settings. Beginning concepts of professionalism and care of clients with self-limiting alterations to health are integral parts of this course. Lecture 4 hours. \$64 testing fee.

NUR 3303 Health Assessment for Medical Interpreters

Prerequisite: NUR 3102. The student uses the nursing process to assess the client by the utilization of observation, palpation, percussion, and auscultation skills. The language of Health Assessment is taught and methods of proper documentation are emphasized. The course provides guidance in specific assessment techniques and enables the student to recognize normal findings throughout the life cycle. Lecture 3 hours.

NUR 3304 Health Assessment

Prerequisite: Departmental permission. The student uses the nursing process to assess the client by the utilization of observation, palpation, percussion, and auscultation skills. The language of Health Assessment is taught and methods of proper documentation are emphasized. The course provides guidance in specific assessment techniques and enables the student to recognize normal findings throughout the life cycle. The student collaborates with members of the healthcare team in the sharing of health findings in order to make a specific nursing diagnosis. \$10 laboratory fee. Lecture 3 hours. Laboratory 3 hours equal to one credit hour.

NUR 3404 Practicum in Nursing I -- Nursing the Individual Client

Prerequisite: NUR 2023 and NUR 3103. Corequisites: NUR 3204 and 3304. Practicum facilitating the integration, synthesis, and application of theories, concepts, and psychomotor nursing skills taught in NUR 3103, 3204, 3304 and 3513. The student uses maintenance nursing behaviors to assist individuals to reach functional adaptation. 12 Clinical hours equal to 4 credit hours. \$20 laboratory fee.

NUR 3501 Nursing Skills Theory for Medical Interpreters II

Prerequisite: NUR 3102. A continuation of NUR 3102. The course provides the student with theory of intermediate-level psychomotor nursing skills. Lecture 1 hour.

NUR 3503 End-of-Life Care

This course is designed to offer basic skills and knowledge needed to recognize and intervene with a client at the end of life. Emphasis is to implement the nursing process with clients at the end of life. Students will apply concepts, theories, principals and techniques gained from their general education and previous nursing courses.

NUR 3513 Nursing Skills II

Prerequisites: NUR 3103. A continuation of NUR 3103. A guided practice of intermediate-level theory and skills in a multimedia simulation laboratory. \$20 course fee. Lecture 1 hour. Laboratory 3 hours equal to one credit hour.

NUR 3603 Personal and Professional Self-Care

Prerequisite: Admission to Upper Division Nursing or consent of instructor. This course provides the RN-BSN student with the opportunity to assess one's own current health, lifestyle, and professional career and consider where one is, where one has been, and where one wants to be in the future. This class will provide a mechanism for change by actively involving the student in a self-analysis and establishment of a course of action for changes that are assessed to be needed.

NUR 3606 Theories and Concepts in Nursing II

Prerequisites: NUR 3204, 3304, 3404, 3513. This course, utilizing the nursing process, builds upon NUR 3204 and includes the bio-psycho-social and spiritual needs of the family. The course emphasizes family development, the childbearing experience, and the child's unique response to the internal and external environment. Lecture 6 hours. \$64 testing fee.

NUR 3703 Nursing Pharmacology

Prerequisites: NUR 3204, 3304, 3404, 3513. This course focuses on the relationships between the action of drugs, their effects and the contraindications for their administration. The relationship between specific patient needs and the type of drugs that would be effective to meet that need will be analyzed. The nursing care related each type of drug and the rationales for the care will be included. Lecture 3 hours.

NUR(BIOL) 3803 Applied Pathophysiology

Each semester. Prerequisites: grade of C or better in BIOL 2014 and BIOL 3074. This course focuses on the mechanisms and concepts of selected pathological disturbances in the human body. Emphasis is placed on how the specific pathological condition effects the functioning of the system involved, as well as its impact on all other body systems. Lecture 3 hours.

NUR 3805 Practicum in Nursing II -- Nursing the Family

Prerequisites: NUR 3103, 3204, 3304, 3404, 3513. Corequisites: NUR 3606 and 3703. A practicum course which facilitates the integration, synthesis, and application of the theories, concepts, and skills taught in NUR 3103, NUR 3513, NUR 3606 and NUR 3703. 15 clinical hours equal to 5 credit hours. \$20 laboratory fee.

NUR 3892 Clinical Competency I

These courses are practicum courses designed to enable a student to prove clinical competence. Students who have failed a junior or senior level theories and concepts course but have passed the accompanying practicum course must prove clinical competence in order to progress to the next level. For the student who failed, NUR 3892 or NUR 4892 would be taken the same semester that the student is repeating the accompanying theories and concepts course. Students who have been absent from the upper division of the nursing curriculum must prove clinical competence at the level of the last practicum course they successfully completed before they can reenter upper division. \$20 laboratory fee.

NUR 4202 Selected Topics

Prerequisite: Departmental permission. This course is designed to offer a selection of topics which will meet student needs and interests. The course provides the student with the opportunity to expand and improve knowledge in a carefully selected topic of relevance to nursing and/or health care. General demand will play a part in the topics offered. May be repeated for credit if course content differs. Lecture 2 hours.

NUR 4206 Theories and Concepts in Nursing III

Prerequisite: NUR 3606, 3703, 3805. The course focuses on the prevention of illness, maintenance of health and the restoration of wellness in the care of clients and families experiencing major dysfunctions in adaptation. The nursing process is the methodology used to assist clients and families toward achieving optimal health. Principles of growth and development throughout the life cycle, utilization of research findings, principles of communication in crisis, and the role of the nurse in crisis situations are included in the course. Psycho-social theories and concepts relevant to the care of the emotionally disturbed client and family are explored in depth. Lecture 6 hours. \$64 testing fee.

NUR(NURN) 4303 Nursing Research

Prerequisite: NUR 3606, 3703, and 3805. This introductory research course focuses on the validity and applicability of research findings for the improvement of nursing practice. Emphasis is on scientific inquiry and the role of the nurse as an intelligent consumer of research.

NUR 4405 Practicum in Nursing III -- Nursing Clients in Crisis

Prerequisites: NUR 3103, 3304, 3513, 3606, 3703, and 3805. Corequisites: NUR 4206. This is a clinical nursing course which provides the opportunity for the integration of theories and concepts in the application of the nursing process in the care of the emotionally and/or physically dysfunctional client, family or group who are undergoing adaptation difficulties due to major deviations from wellness. The health care is delivered according to scientific principles, research findings, and accepted standards of care. Nursing behaviors and nursing roles are emphasized which are appropriate to the level of the students. Learning experiences are gained through caring for clients. 15 clinical hours equal to 5 credit hours. \$20 laboratory fee.

NUR 4502 Principles of ACLS

Prerequisite: Departmental permission or consent of the instructor. This course is designed to offer the student the knowledge and skills necessary to provide appropriate early treatment for cardiopulmonary arrest in the adult patient utilizing current ACLS protocols as guidelines for emergency care.

NUR 4606 Theories and Concepts in Nursing IV

Prerequisites: NUR 4202, 4206, 4303, and 4405. The course focuses on the prevention of illness, maintenance of health, and the restoration of wellness of individuals, families, and communities. Concepts of epidemiology, prevention, decision making, and collaboration are utilized to organize and deliver distributive nursing care in complex situations. Theories and techniques of management are studied which relate to self, team members, and care of groups of clients. The emerging role of the professional nurse is explored. Lecture 6 hours. \$64 testing fee.

NUR 4804 Practicum in Nursing IV -- Nursing in the Community

Prerequisites: NUR 4206 and 4405. Corequisites: NUR 4606 and 4903. A clinical course which integrates theories and concepts from all nursing courses and provisions for practice in predominantly distributive healthcare settings. Emphasis is on the utilization of the nursing process, the prevention of illness, maintenance of health, and the restoration of wellness of individuals, families, and communities, experiencing adaptation to complex health problems. Management skills and techniques are utilized in the delivery of holistic nursing care. Activities are provided which facilitate the role transition from student to professional nurse. Clinical experiences occur in a variety of distributive healthcare settings. 12 clinical hours. \$20 laboratory fee. \$64 testing fee.

NUR 4892 Clinical Competency II

These courses are practicum courses designed to enable a student to prove clinical competence. Students who have failed a junior or senior level theories and concepts course but have passed the accompanying practicum course must prove clinical competence in order to progress to the next level. For the student who failed, NUR 3892 or NUR 4892 would be taken the same semester that the student is repeating the accompanying theories and concepts course. Students who have been absent from the upper division of the nursing curriculum must prove clinical competence at the level of the last practicum course they successfully completed before they can reenter upper division. \$20 laboratory fee.

NUR 4903 Synthesis of Clinical and Theoretical Nursing

Corequisites: NUR 4606 and 4804. Synthesis of clinical and theoretical nursing knowledge occurs throughout the course. Students will be required to use all previously learned clinical and theoretical knowledge in the management of a diverse client population for which they are planning and providing a full-range of needed health care. Theory and clinical application of nursing knowledge must be integrated in order to prioritize, delegate, and ensure the delivery of comprehensive health care to clients in a variety of institutional and community-based settings. Students work closely with designate professional nurse preceptors and faculty in carrying out these learning activities. \$40 testing fee.

NUR 4951-4 Undergraduate Research in Nursing

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

NUR 4991-4 Independent Study

Prerequisites: Departmental permission or NUR 4303. Faculty and student collaborate on the selection, development, and evaluation of an individual project or topic in an area of nursing or health. 15 clock hours per credit hour.

Nursing for Registered Nurses

NURN 4002 Nursing Informatics

Prerequisite: Admission to Upper Division or consent of instructor. This practicum course establishes competency in using information resources within a professional nursing context. The course incorporates utilizing online resources available at ATU, Arkansas state, federal, and organizational web sites. In addition to becoming familiar with these resources, the student will identify and utilize online health-related resources.

NURN 4003 Scope of Professional Practice

Prerequisite: Admission to Upper Division or consent of instructor. This course will enable the RN-BSN student to recognize how history and modern economic forces have shaped current professional practice. The student will examine the development of Nurse Practice Acts and how states use these Acts to manage professional licenses and scope of professional practice. The student will examine the variety of roles and setting in which the professional nurse can work.

NURN 4013 Laws, Ethics, and Issues in Professional Nursing Practice

Prerequisite: Admission to Upper Division or consent of instructor. This course will enable the RN-BSN student to examine the legal, ethical, and policy-making traditions that frame the health care industry. This course will emphasize the integration of personal values, institutional cultures, law, and ethical decision-making in professional practice.

NURN 4024 Community Health Nursing

Prerequisite: Admission to Upper Division or consent of instructor. This course will introduce the RN-BSN student to the concepts and principles relevant to the promotion, support, and restoration of health for clients of all ages in a variety of settings with particular emphasis upon the health of populations or groups. The student will perform a community assessment which involves the collection and analysis of data from a selected community to plan appropriate educational interventions.

NURN 4034 Leadership and Management in Professional Practice

Prerequisite: Admission to Upper Division or consent of instructor. This course will enable the RN-BSN student to recognize the principles and concepts of change theory and leadership/management strategies in professional practice. The student will examine how current leadership and management strategies are implemented within the health care settings and how effective and efficient these strategies are to health care delivery and consumer health. Management and leadership issues significant to nurse managers will be examined and discussed.

NURN 4045 Professional Practicum Synthesis

Prerequisite: NURN 4024 and admission to Upper Division or consent of instructor. This practicum course enables the RN-BSN student to integrate the skills and insights gained from this program in a population or group-based application. This capstone course demonstrates the cognitive and affective growth achieved while in the RN-BSN Completion Program.

NUR(NURN) 4303 Nursing Research

Prerequisite: NUR 3606, 3703, and 3805. This introductory research course focuses on the validity and applicability of research findings for the improvement of nursing practice. Emphasis is on scientific inquiry and the role of the nurse as an intelligent consumer of research.

Philosophy

PHIL 2003 Introduction to Philosophy

A survey of basic problems in the major areas of philosophical inquiry--metaphysics, epistemology, ethics, esthetics, and philosophy of religion.

PHIL 2013 Religions of the World

An examination of the major historical religions according to their basic scripture, their historical development, and their contemporary ideas and practices.

PHIL 3003 Ancient Philosophy

An examination of the thought of the leading philosophers of ancient Greece and Rome -- the Pre-Socratics, Socrates, Plato, Aristotle, and representatives of the Stoic and Epicurean traditions.

PHIL 3013 Modern Philosophy

A survey of the history of philosophical thought and its impact upon western civilization from the Renaissance to the twentieth century.

PHIL 3023 Ethics

An introduction to the problems of formulating and validating principle definitive of "the good" in respect to ends, means, and norms of human behavior.

PHIL 3033 Esthetics

An investigation of representative historical theories of beauty, the nature and social significance of art, standards of criticism, and epistemological aspects of the creative process.

PHIL 3053 Philosophy of Religion

A consideration of historical and contemporary studies in religious thought - basic conceptions of the divine, the human engagement with the divine, and the nature and destiny of man within diverse eschatological perspectives.

PHIL (POLS) 3063 Modern Political Thought

An examination of the major contributions to political thought during the Modern Era. Completion of POLS 2253 recommended.

PHIL 3103 Logic

A study of the principles of deductive reasoning. Topics include immediate inference, the syllogism, truth-functions, natural deduction, quantification, and fallacies.

PHIL 3113 Contemporary Philosophy

A survey of some of the major philosophical trends of the twentieth century.

PHIL 3203 Medieval Philosophy

Historical study of the main philosophical ideas of the period from St. Augustine to the Renaissance.

PHIL (POLS) 3253 Classical Political Thought

An examination of the major contributions to political thought during the Classical Age, the Medieval Era, and the Renaissance. Completion of POLS 2253 recommended.

PHIL 4093 American Philosophy

An examination of the main currents of American philosophical and religious thought from the earliest times to the present.

PHIL 4103 Advanced Logic

Prerequisite: PHIL 3103. A study of selected topics in advanced logic. Emphasis will be placed on proof theory, quantification theory, semantic tableaux, logicism, theories of completeness and consistency, and some consideration of the logical foundations mathematics.

PHIL 4951-4 Undergraduate Research in Philosophy

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

PHIL 4991-4 Special Problems In Philosophy
Admission requires consent of department head.

Physical Education Activities

The activities service program of the Department of Health and Physical Education is designed for the individual who is not majoring in health and physical education. The courses are designed to develop physical skills, physical fitness, and aesthetic value for movement and experience, and to learn the rules and strategy of the activities.

Students enrolled in activity classes must furnish their own clothing for the class. The proper dress attire for the class will be shirts, shorts, and gym shoes. Students enrolled in the swimming classes must furnish their own swim suits. Students enrolled in scuba diving classes will pay an additional equipment rental fee. The fee is currently \$100 and is subject to change. Students enrolled in bowling classes will pay a \$70 bowling fee.

PE 1051 Volleyball

Designed for beginning volleyball players. The student will learn the fundamental skills, knowledge of the rules, and terminology associated with volleyball.

PE 1101 Folk and Square Dance

Course content will include the origin and factors which influence development of folk and square dance. Basic steps, basic positions, and dance movements will be introduced to the students.

PE 1121 Social Dance

Techniques of leading and following, basic positions, and a variety of dance steps will be introduced throughout the course.

PE 1301, 1311 Beginning Ballet I and II

These courses are designed for those students that have little or no ballet training but have an interest in pursuing dance. Ballet forms the basis for all dance arts and offers specific training in all muscle groups of the body. These courses offer students beginning-level technical and performance training in ballet. Flexibility, strength, body alignment and coordination lay a foundation for the introduction of more advanced aspects of dance artistry including more difficult steps, musicality, mobility, and balance.

PE 1321, 1331, 1341, 1351 Intermediate Ballet I-IV

These courses offer intermediate level training in ballet technique and performance for proficient dancers. It stresses the physical and mental skills necessary to make the transition to more advanced dance work. These include physical stamina, strength, flexibility, articulation, coordination, musicality, and phrasing; an understanding of basic physical concepts underlying clear and efficient movement; the capacity to assimilate new movement material; and an awareness of the center of gravity and its role in the mobilization and control of the body.

PE 1361, 1371 Advanced Ballet I and II

These courses are a continuation and refinement of the skills achieved in Intermediate Ballet I-IV. The courses offer advanced level training in ballet technique and performance for proficient dancers. They stress the physical and mental skills necessary to make the transition to professional dance work. These include physical stamina, strength, flexibility, articulation, coordination, musicality, and phrasing; an understanding of basic physical concepts underlying clear and efficient movement; the capacity to assimilate new movement material; and an awareness of the center of gravity and its role in the mobilization and control of the body.

PE 1401 Archery and Recreational Games

The student will learn the fundamental skills in archery, including care and selection of archery tackle. Recreational games will include table tennis, giant volleyball, three-way volleyball, box hockey, pin ball, scooter soccer, variety ball, indoor soccer, and horse shoes.

PE 1411 Badminton

Designed for beginning badminton players. The student will learn the fundamental skills and a knowledge of the rules and terminology associated with badminton.

PE 1431 Bowling

The bowling classes are structured for the beginning bowler. Fundamental skills and general bowling knowledge and etiquette will be introduced to the student. (\$77.50 fee).

PE 1481 Tennis

Constructed to aid the beginning tennis player to learn the fundamental skills for tennis. The student will gain a knowledge of the rules and strategy in tennis.

PE 1851 Tennis and Basketball

Designed for the average student. Fundamentals in basketball and tennis will be introduced along with knowledge of the rules and strategies of play.

PE 1901 Beginning Swimming

This course is designed for students who cannot swim 25 yards on front and 25 yards on back (any form), and/or students who are afraid of water. Introduction to various aquatic activities is included.

PE 1911 Intermediate Swimming

Students who are comfortable in deep water and are able to swim 25 yards on front and 25 yards on back (any form) may enroll in this course. Application of intermediate skills through various forms of aquatic activities is included.

PE 1991 Racquetball

Designed to introduce the rules and strategy of racquetball and develop the basic skills needed to play racquetball successfully.

PE 2301 Beginning Golf

Designed for individuals who wish to learn the basic fundamentals in golf. Course includes the fundamentals of the full swing and the fractional swing in golf. It also includes the knowledge of rules and courtesies of golf.

PE 2861 Rhythmic Aerobic Activities

This course will include motor skills put to music, rope jumping, step aerobics, kickboxing, senior fitness, children's fitness, sport aerobics, sculpting, and aerobic dance activities.

PE 2921 Water Safety Instructor

Prerequisite: PE 1911 or equivalent skills. This course is designed to train and certify students as American Red Cross swim instructors.

PE 2932 Lifeguard Training

Prerequisite PE 1911 or equivalent skills. This course is designed to train students as lifeguards.

PE 2941 Scuba Diving I

This course is designed to serve as an introduction to scuba. Course will include classroom work and laboratory (pool) practice. Student must provide mask, snorkel, fins, weight belt, and weights. (Rental fee paid to rental company for use of scuba equipment including tank, regulator, alternate air source, submersible pressure gauge, depth gauge, underwater compass, buoyancy control device with automatic inflator, and air fills. Rental fee is currently \$100 and is subject to change.)

PE 2951 Scuba Diving II

Prerequisite: Open Water Diver certified or equivalent (see instructor for equivalency). This course will contain the advanced scuba skills set forth by the Professional Association of Diving Instructors (PADI). The course will include techniques for; diving at night, in limited visibility, in deeper waters, and underwater search and light salvage. Field trips (lake dives) are required for certification as an Advanced Open Water Diver. Students must provide all equipment. (See instructor for equipment list). (Rental fee paid to rental company for use of scuba equipment including tank, regulator, alternate air source, submersible pressure gauge, depth gauge, underwater compass, buoyancy control device with automatic inflator, and air fills. Rental fee is currently \$100 and is subject to change.) (\$50 fee includes certification processing and open water training.)

Academic Courses for Physical Education**PE 1201 Orientation to Health, Physical Education, and Wellness Science**

This course provides an introduction to the HPE/WS curriculum, as it affects the student. Emphasis will be given to resources, services and opportunities available to the student through the University, which will help him or her grow as a professional. This is a pass or fail class.

PE 2101 Methods of Teaching Team Activities

This course is designed to assist in teaching students to be skilled and knowledgeable in selected team activities. Emphasis will be placed on developing and evaluating the students' skills and knowledge.

PE 2111 Methods of Teaching Individual Activities

This course is designed to assist in teaching students to be skilled and knowledgeable in selected individual activities. Emphasis will be placed on developing and evaluating the student's skills and knowledge.

PE 2513 First Aid

Each semester. Standard and advanced course in first aid. This course includes CPR instruction.

PE 2523 Foundations in Health and Physical Education

A study of history, philosophy, and principles of health and physical education in grades K-12 as applied to each area.

PE 2653 Anatomy and Physiology

Prerequisite: BIOL 1014 or permission of department head. The structure and function of the human body with emphasis on the bodily systems important to teachers and practitioners of wellness, fitness, and physical education.

PE 3051 Methods of Teaching Fitness and Wellness Concepts

This course is designed to provide the student with knowledge needed to implement a sound fitness and wellness program that will yield the desired results. The emphasis is on teaching students how to take control of their own personal health and lifestyle habits so that they can make a deliberate effort to stay healthy and achieve the highest potential for well-being. \$10 Tech Fit fee.

PE 3101 Methods of Teaching Rhythmic and Gymnastic Movements

Methods and activities to develop rhythm, folk dance, and gymnastic skills related to teaching physical education. Laboratory two hours.

PE 3103 Methods of Teaching Movement Patterns and Activities for Children

Prerequisite: Admission to Stage II or permission of department head. Methods and activities to develop basic movement patterns, primary and lead-up game skills, and knowledge related to teaching elementary physical education. Lecture one hour, laboratory four hours.

PE 3413 Coaching Theory

The course exposes students to the theory of coaching, relevant to athletics. Emphasis is placed on organization, management, and content involved in coaching a variety of sports.

PE 3512 Coaching Strategies: Football & Baseball

Principles of coaching football and baseball, including off-season training programs, team organization, offense, defense, scouting, and use of visual aids. One hour lecture and one hour laboratory.

PE 3522 Coaching Strategies: Basketball & Track and Field

Principles of in-season and off-season training programs and team organization for track and field. Additionally, the course is designed to provide a systematic process for teaching basketball skill development and team strategies. Emphasis on fundamental skills and drills, rules and evolution of the game, offensive and defensive strategies used by various successful coaches are introduced. Extensive use of floor demonstrations and video presentations enhance the course content. One hour lecture and one hour laboratory.

PE 3532 Coaching Strategies: Softball and Volleyball

This course will offer information relative to the following topics for both volleyball and softball: in-season and off-season training programs, team organization, offense, defense, special situations, scouting, and use of visual aids. One hour lecture and one hour laboratory.

PE 3573 Prevention and Care of Athletic Injuries

Prerequisites: PE 2653, 3663. Development of techniques in prevention and treatment of athletic injuries.

PE 3583 Methods and Materials in Physical Education and Recreation for Kindergarten and Elementary Grades

Prerequisite: PE 3103. Methods, materials, supervision, school problems, rhythmical activities, movements exploration, and group games for kindergarten and elementary teachers. Lecture two hours, laboratory two hours.

PE 3603 Methods and Materials in Physical Education for Secondary Schools

Prerequisites: PE 2101, PE 2111 and admission to Stage II. A course in program planning and techniques of teaching physical education in the secondary schools, critical analysis of methods now in use in physical education, and criteria for evaluation of programs. Lecture two hours, laboratory two hours.

PE 3661 Laboratory Experiences in Anatomy/ Physiology and Kinesiology

Prerequisite: PE 2653 or permission of department head. The laboratory experience supplements Anatomy/ Physiology and Kinesiology by providing practical experiences which enable students to bridge the gap between theory and practice.

PE 3663 Kinesiology

Prerequisite: PE 2653. Study of human movement and the physical and physiological principles upon which it depends. Body mechanics, posture, motor efficiency and the influence of growth and development upon motor performance.

PE 4033 Basic Exercise Physiology

Prerequisites: PE 2653, 3663, and 3661, or permission of the department head. Introduction to the basic effects of exercise on physiology of the systems of the body, and the principles of exercise prescriptions and programs.

PE 4103 Principles and Methods of Adapted Physical Education

Principles and methods of teaching special students with various types of physical and mental disabilities which require adapting the learning process.

PE 4203 Methods of Teaching Adapted Physical Education in the Schools

Prerequisites: PE 3103, PE 3583 or permission of the department head. Principles and methods of teaching students with disabilities in the schools. Lecture two hours, laboratory two hours.

PE 4513 Organization and Administration of Health and Physical Education

Organization and administration problems in grades K-12 to be treated as a single administrative unit.

PE 4523 Measurement and Evaluation in Health and Physical Education

Prerequisite: Admission to Stage II or permission from department head. Research methods, measurement, and evaluation in health, physical education, and recreation with an analysis of their practical application.

PE 4701 Special Methods in Health and Physical Education

Prerequisites: Admission to student teaching phase of the teacher education program and concurrent enrollment in SEED 4809. Intensive on-campus exploration of the principles of curriculum construction, teaching methods, use of community resources, and evaluation as related to teaching health and physical education.

PE 4991-4 Special Problems in Health and Physical Education

Prerequisite: PE 4523. Open to physical education majors and minors of outstanding ability. Course content will include readings and research and the setting up and carrying out of a piece of research which will include review of literature, the problem, and conclusion.

Physical Science

PHSC 1001 Orientation to Physical Science

Fall. Introduction to vital university affairs, department and university resources and curriculum. The course emphasizes information and skills that increase a student's likelihood of a successful college career. All students majoring in programs within the Department of Physical Sciences are strongly encouraged to take this course during their first fall semester on the Arkansas Tech University campus. Lecture one hour.

PHSC(BIOL) 1004 Principles of Environmental Science

This course is designed to bring the student to a basic but informed awareness of and responsible behavior toward our environment and the role of the human race therein. The content will include a study of the philosophical and scientific basis for the study of ecosystems and the environment, the nature of ecosystems, the techniques used to study the environment, the origin and development of current environmental problems, the interdisciplinary nature of environmental studies, the processes of critical thinking and problem solving, and the moral and ethical implications of environmentally-mandated decisions. Lecture three hours, Lab three hours. \$20 laboratory fee.

PHSC 1011 Orientation to Physical Science II

Spring. Continuation of PHSC 1001. Introduction to programs of study and employment opportunities for students of the physical sciences. All students majoring in programs within the Department of Physical Sciences are strongly encouraged to take this course during their spring semester on the Arkansas Tech University campus. Lecture one hour.

PHSC 1013 Introduction to Physical Science

Each semester. Prerequisite: A score of 19 or above on the mathematics section of the ACTE exam or completion of MATH 0903, Intermediate Algebra, with a grade of "C" or better. An introduction to the natural laws governing the physical world, with emphasis upon the discovery and development of these laws and their effect upon man. Includes topics in physics and chemistry and may include other topics from other disciplines in physical science such as astronomy, meteorology, and/or geology. May not be taken for credit after completion of two laboratory courses in the physical science disciplines. Lecture three hours. Note: To enroll in an internet section (TC1) of this course, the prerequisite COMS 1003 or equivalent is required.

PHSC 1021 Physical Science Laboratory

Each semester. To be taken concurrent with or following completion of PHSC 1013. An introduction to laboratory experiences in the physical sciences, including physics, chemistry, earth sciences, and astronomy. Laboratory two hours. \$10 laboratory fee. Note: To enroll in an internet section (TC1) of this course, the prerequisite COMS 1003 or equivalent is required.

PHSC 1051 Observational Astronomy Laboratory

Fall. Prerequisite: A score of 19 or above on the mathematics section of the ACTE exam or completion of MATH 0903 with a grade of "C" or better. Corequisite: PHSC 1053 or consent of instructor. An introduction to astronomical observations and techniques. Students will have the opportunity to use telescopes at the ATU astronomical observatory (weather permitting) to make observations and collect scientific data for analysis. This course includes telescope orientation, constellation recognition, identifying celestial objects, and interpreting astronomical data. When taken concurrently with PHSC 1053, this course satisfies the general education physical science laboratory requirement upon successful completion of both courses. Course PHSC 1051 will run simultaneously with PHSC 3051 and duplicate credit will not be allowed. Credit for PHSC 3051 requires completion of an observational research project for upper division students, but is not required of students enrolled in PHSC 1051. Laboratory 3 hours; 1 credit hour. \$10 laboratory fee.

PHSC 1053 Astronomy

Fall. Prerequisite: A score of 19 or above on the mathematics section of the ACTE exam or completion of MATH 0903 with a grade of "C" or better. Corequisite: PHSC 1051 or consent of instructor. A study of our universe; constellations, celestial motions, tools and methods of astronomical observations, the solar system, properties of stars and the interstellar medium, the birth, life and death of stars, our Milky Way galaxy, dynamics of stellar systems and other galaxies, and cosmology. When taken concurrently with PHSC 1051, satisfies general education physical science laboratory requirement upon successful completion of both courses. Course PHSC 1053 will run simultaneously with PHSC 3053 and duplicate credit will not be allowed. Credit for PHSC 3053 requires completion of several assignments, a term paper and a research project for upper division students, but is not required of students enrolled in PHSC 1053. Lecture three hours.

PHSC 1074 Physical Science Inquiry

Each Semester. Prerequisite: A score of 19 or above on the mathematics section of the ACTE exam or the completion of MATH 0903, Intermediate Algebra, with a grade of "C" or better. This course is designed to model physical science teaching and learning through the process of inquiry. Topics explored are Interactions and Energy, Forces, Systems, Behavior of Gases, Physical Changes, and Chemical Changes. The focus is upon the construction of knowledge regarding science content and process skills essential to the preparation of teachers of physical science in early childhood education. It is recommended for early childhood education majors seeking to fulfill undergraduate requirements in preparation for upper level science methods courses and is equivalent to 3 hours of lecture and 3 hours of laboratory experience in physical science. However, the course requires that students participate as active learners in an activity-based, cooperative learning style curriculum. \$10 laboratory fee.

PHSC 3033 Meteorology

Spring. Prerequisite: PHSC 1013 or PHYS 2014 or CHEM 1114 or CHEM 2124. A study of the weather, the physics of the atmosphere, and associated phenomena. Lecture three hours.

PHSC 3051 Observational Astronomy Laboratory

Prerequisite: MATH 1113; Corequisite: PHSC 3053 or consent of instructor. An introduction to astronomical observations and techniques. Students will have the opportunity to use telescopes at the ATU astronomical observatory (weather permitting) to make observations and collect scientific data for analysis. This course includes telescope orientation, constellation recognition, identifying celestial objects, and interpreting astronomical data. When taken concurrently with PHSC 3053, this course satisfies the general education physical science laboratory requirement upon successful completion of both courses. Credit for PHSC 3051 requires completion of an observational research project for upper division students. Laboratory 3 hours; 1 credit hour. \$10 laboratory fee.

PHSC 3053 Astronomy

Fall. Prerequisite: MATH 1113; Optional corequisite: PHSC 3051 or consent of instructor. A study of our universe; constellations, celestial motions, tools and methods of astronomical observations, the solar system, properties of stars and the interstellar medium, the birth, life and death of stars, our Milky Way galaxy, dynamics of stellar systems and other galaxies, and cosmology. When taken concurrently with PHSC 3051, satisfies general education physical science laboratory requirement upon successful completion of both courses. Credit for PHSC 3053 requires completion of a term paper and a research project for upper division students. Duplicate credit for previously offered PHSC 3043 is not allowed. Lecture three hours.

PHSC(BIOL) 3213 Science Education in the Elementary School

Each semester. Prerequisites: Junior standing, ECED 2001, ECED 2002, and at least six credit hours in science. An overview of the most recent and research-based strategies and techniques for planning, teaching, and assessing elementary science. Inquiry-based methods and other constructivist approaches as described in the National Science Education Standards will be emphasized. Design and execution of learning activities for an elementary school setting are required. Lecture two hours, laboratory two hours; three credit hours. \$10 laboratory fee. Note: To enroll in an internet section (TC1 or AT1) of this course, one of these prerequisite courses is required: COMS 1003, EDMD 3013, or equivalent.

PHSC(BIOL) 3223 Science Education in the Middle Level

Spring. Prerequisites: 16 hours in science and MLED 2001. This course is designed to provide pre-service teachers with an integrated approach to the teaching of science in the middle grades. Theoretical and practical aspects of teaching science will be explored and students will develop curricular materials based on their explorations. Lecture two hours, laboratory 2 hours. \$10 laboratory fee.

PHSC(BIOL) 3233 Science Education in the Secondary School

Fall. Prerequisites: 16 hours in biology or 16 hours in physical science and SEED 2002. This course will examine the issues of nature and history of science, developing lessons and assessments, and science education standards for the prospective secondary school teacher. Curriculum development, including assessment and planning skills, utilizing various instructional media and inquiry methodology are emphasized. Design and execution of learning activities for a secondary school setting are required. Lecture two hours and lab two hours. \$10 laboratory fee.

PHSC/BIOL 3252 The Nature and Context of Science

Prerequisite: At least 12 hours of science courses. This seminar course examines science from a holistic perspective. It will concentrate on examining how current science develops scientific knowledge including unifying concepts across scientific disciplines, the place of science within modern society, technology and its role in science and society, and current scientific methodology.

PHSC(BIOL) 4003 History and Philosophy of Science

Prerequisite: a Sophomore-level science course (or higher). A course in the historical development and philosophical basis of modern science. May not be repeated for credit as PHSC (BIOL) 5003 or equivalent. Lecture two hours.

PHSC(BIOL) 4013 Multicultural Science Education

On demand. Prerequisites: Junior standing or admission to teacher education program. A course designed to familiarize prospective teachers with the materials, methods, and procedures to meet the needs of culturally diverse learners in the science classroom. This course includes the discussion of equity issues, the limitations of Eurocentric and androcentric science worldviews, how culturally diverse students learn science, instructional strategies, technology, and alternative assessment. Lecture three hours for three credit hours.

PHSC 4701 Special Methods in Physical Science

Prerequisites: Admission to student teaching phase of the teacher education program and concurrent enrollment in SEED 4909. Intensive on-campus exploration of the principles of curriculum construction, teaching methods, use of community resources, and evaluation as related to teaching physical science.

Physics

PHYS 1114 Applied Physics

Spring. A survey of selected topics in physics. The "scientific method", mechanics, fluid mechanics, heat, electricity, sound, light, and nuclear radiation will be studied. May not be taken for credit after completion of PHYS 2014, PHYS 2024, PHYS 2114, or PHYS 2124. Lecture three hours, laboratory three hours. \$10 laboratory fee.

PHYS 2000 Physics Laboratory I

Corequisite: PHYS 2014 or PHYS 2114.

PHYS 2010 Physics Laboratory II

Corequisite: PHYS 2024 or PHYS 2124.

PHYS 2014 Physical Principles I

Concurrent enrollment in PHYS 2000 is required. Prerequisite: A grade of C or better in MATH 1113 or consent of the instructor. Open to freshmen. A broad survey course emphasizing the understanding of the principles of physics necessary for students not specifically interested in advanced work in physics, chemistry or engineering. Topics include mechanics, heat, sound, wave motion, and fluid mechanics. Lecture three hours, laboratory three hours. \$10 laboratory fee.

PHYS 2024 Physical Principles II

Concurrent enrollment in PHYS 2010 is required. Prerequisite: PHYS 2014 or permission of instructor. Continuation of PHYS 2014, covering electricity and magnetism, light, relativity, particle physics, and quantum effects. Lecture three hours, laboratory three hours. \$10 laboratory fee.

PHYS 2114 General Physics I

Concurrent enrollment in PHYS 2000 is required. Pre- or corequisite: MATH 2924. Introductory mechanics, heat and thermodynamics, kinetic theory, and sound. Lecture three hours, laboratory three hours. \$10 laboratory fee.

PHYS 2124 General Physics II

Concurrent enrollment in PHYS 2010 is required. Prerequisite: Permission of instructor; pre- or corequisite: MATH 2934. Introductory electricity and magnetism, wave motion, optics, and elementary quantum concepts. Lecture three hours, laboratory three hours. \$10 laboratory fee.

PHYS 3001, 3011 (PHYS 4001, 4011) Colloquium

On demand. Prerequisite: Junior standing. Attendance required of students interested in physics concentration. Discussion of advanced topics in current physical theory. Student presentations are required. Lecture-discussion one hour.

PHYS 3003 Optics

Spring even years. Prerequisite: PHYS 2124 or consent of instructor. Introduction to geometrical and physical optics. Lecture two hours, laboratory two hours. \$10 laboratory fee.

PHYS 3023 Mechanics

Fall even years. Prerequisite: PHYS 2114. Corequisite: MATH 3243. The conservation laws. Euler's angles. Lagrange's and Hamilton's equations. Lecture three hours.

PHYS 3033 (MCEG 3523) Radiation Health Physics

On demand. Prerequisites: PHSC 1013, PHYS 2014 or CHEM 2124. Theory and exercises in radiological monitoring techniques, neutron activation analysis, and environmental effects of nuclear reactors. Lecture three hours.

PHYS 3042 Intermediate Physics Laboratory

Fall odd years. Prerequisite: PHYS 2114 and 2124. For physical science education majors. This course expands and refines essential content and laboratory skills through the modeling and experimental investigation of topics in both classical and modern physics. Will not satisfy the physics elective requirement for students majoring in physical science. Laboratory three hours. \$10 laboratory fee.

PHYS 3133 Theory of Electricity and Magnetism

Fall even years. Prerequisite: PHYS 2124. Gauss's law, potential, Laplace's and Poisson's equations in rectangular, cylindrical, and spherical coordinates, inductance, capacitance, moving charges, dielectric phenomena, and Maxwell's equations. Lecture three hours.

PHYS 3143 (ELEG 3103) Electronics

On demand. Prerequisite: PHYS 2124 or ELEG 2113. Amplifiers, power supplies, oscillators, trigger circuits, modulation, and demodulation. Intended to acquaint students with the working principles of the equipment they will use as a physicist. Lecture two hours, laboratory three hours. \$10 laboratory fee.

PHYS 3153 Solid State Physics

Fall odd years. Prerequisites: PHYS 2114, 2124; CHEM 2124. Corequisite: MATH 3243. An introduction to the physics governing the crystalline state of matter. Modern theories describing lattice vibrations, energy bands, crystal binding, and optical properties are presented. These ideas are then applied to the understanding of technologically important areas such as superconductivity, doped semiconductors, ferroelectric materials, and photorefractivity. Lecture 3 hours.

PHYS 3213 Modern Physics

Fall odd years. Prerequisite: PHYS 2124. Introduction to relativity, wave-particle interactions, atomic structure, quantum mechanics, quantum theory of the hydrogen atom, statistical mechanics, nuclear structure, and elementary particles. Lecture 3 hours.

PHYS 3991-3 Special Problems in Physics and Astronomy

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to significant problems in physics and astronomy. Supervised by faculty member. Formal report and presentation required. One to three credits depending on problem selected and effort made.

PHYS 4001, 4011 (PHYS 3001, 3011) Colloquium

On demand. Prerequisite: Junior standing. Attendance required of students interested in physics concentration. Discussion of advanced topics in current physical theory. Student presentations are required. Lecture-discussion one hour.

PHYS 4003 Thermodynamics and Statistical Mechanics

Spring odd years. Prerequisite: PHYS 2124. Pre- or corequisite: MATH 3243. Applications of the three laws of thermodynamics, partition-functions and transport phenomena. Lecture three hours.

PHYS 4013 Quantum Mechanics

Spring even years. Prerequisites: PHYS 3213 and MATH 3243. A formal course in wave and matrix mechanics, designed to enable a student to set up and solve the elementary practical problems of quantum mechanics. Lecture three hours.

PHYS 4113 Advanced Physics Laboratory

Spring odd years. Prerequisite: PHYS 3213. An application and investigation of advanced physical topics in the laboratory. Techniques of experimental [engineering] physics, such as computerized instrumentation, vacuum technology, optics, and electron optics will be applied to investigate various areas of advanced physics. Proper data reduction and analysis will be used to yield meaningful measurements. Intended as a culminating course, previous course work is applied to solve problems in the laboratory. Lecture 1 hour, Lab 5 hours. \$10 laboratory fee.

PHYS 4213 Advanced Topics in Physics and Astronomy

Spring even years. Prerequisite: PHYS 2024 or PHYS 2124. Introduction to relativity, elementary particle physics, quantum dynamics, big-bang cosmology, atomic nucleosynthesis, and large scale structure and exotic states of matter such as black holes. Forces and interactions between the building blocks of matter in addition to cosmological models will be studied to gain insight into the complex universe we observe today. Lecture two hours, laboratory two hours. \$10 laboratory fee.

PHYS 4951-4 Undergraduate Research in Physics

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

PHYS 4991-4 Special Problems in Physics and Astronomy

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to significant problems in physics and astronomy. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

Political Science

POLS 2003 American Government

Prerequisite: Minimum score of 19 on the English and Reading portions of the ACT or successful completion of ENGL 1013 or equivalent. A study of the principles and practices of American Government, explaining the origin and purpose of our governmental institutions in a broad sense, with consideration given to interstate and national state relations.

POLS 2013 Introduction to Political Science

The basic terms and concepts for the study of political science, including an understanding of democratic and authoritarian political systems and the methods for researching and writing a political science paper. This course is highly recommended for all students interested in political science.

POLS 2153 Introduction to Strategic Studies

An introduction to strategic studies focusing on the key theoretical principles that have played a major role in shaping Western understandings of strategy, with particular focus on the United States.

POLS 2253 Survey of Western Political Thought
An introduction to the subfield of political theory, examining the works of major political thinkers from ancient Greece to the present.

POLS 2421, 2431, 3421 Model United Nations Workshop

Prerequisite: POLS 3433. Participation in the state or regional Model United Nations. Only one of these courses may be taken for credit during a semester. POLS 3421 may be repeated for credit three times.

POLS 2513 Research Methods I

This course is designed as an introduction to the field of political science research. This course teaches the scientific method as applied to political science, bibliographical aids, and the study and writing of political science. It is a hands-on course where students will use the skills learned to evaluate social science research.

POLS 3013 Recent American Foreign and Military Policy

The post World War II environment in which U.S. foreign and military policy functions; emphasis is on the formulation of policy, relationship of foreign policy and domestic affairs, problems of foreign and military policy coordination and control, and the military-industrial complex.

POLS(CJ) 3023 Judicial Process

The structure and operation of the state and national court systems. Emphasis upon the role of the criminal courts in the political system and the consequences of judicial policy making.

POLS 3033 American State and Local Government

A comparative study of the nature of the organization and operation of state and local governments in the United States with emphasis on state and local government in Arkansas.

POLS 3053 Introduction to Public Administration

A study of public administration with attention devoted to organizational problems and pathology, leadership, communication, control, and the hiring, training, compensating, motivating, and firing of personnel. Numerous case studies are considered.

POLS (PHIL) 3063 Modern Political Thought

An examination of the major contributions to political thought during the Modern Era. Completion of POLS 2253 recommended.

POLS 3083 Political Parties and Interest Groups

A study of American political parties and interest groups with emphasis on such topics as public opinion, the nature and history of parties and interest groups, organizational structures and procedures, public policy interest, nominations, and elections.

POLS 3093 American Municipal Government

A comparative study of the structure, functions, politics, and problems of urban, suburban, and metropolitan governments in the United States, with emphasis on municipal governments in Arkansas.

POLS 3113 Congress and the Presidency

A detailed and contemporary study of the two principle institutions of the United States Government, the Congress and the Presidency, as well as the relationship between the two branches.

POLS 3123 American Political Behavior

A study of the individual's decision to participate in American political life and the impact those decisions have on policy formation. The course aims to understand the influences that lead to or retard individual political participation.

POLS (PHIL) 3253 Classical Political Thought

An examination of the major contributions to political thought during the Classical Age, the Medieval Era, and the Renaissance. Completion of POLS 2253 recommended.

POLS 3403 Comparative Government

A study of various political systems of the world, such as the governments of Western Europe, socialist or communist systems, and developing world governments. The focus of this course is often adjusted to deal with real world circumstances.

POLS 3413 International Relations

A study of the theory and practice of international politics, with special emphasis upon decision making, policy making, the state system, war and arms control, ideology and nationalism, the ecological system, interdependence, the multinationals, and human rights.

POLS 3433 United Nations

Study of the organization and functioning of the United Nations, significant problems confronting world organization, weaknesses of the UN, and the future of world organization. Students will conduct research and write papers on significant international issues confronting the UN and on the foreign policy of selected members of the UN. Students will participate each week in a mock session of the UN and will attend, at their own expense, the annual session of the Arkansas Model United Nations, which normally meets on Friday and Saturday of the first week in December. Only one Model United Nations course may be taken for credit during a semester. Course offered in fall semester only.

POLS 3473 National Security Policy

A study of national security policy making, with an emphasis on current national security issues.

POLS 3513 Research Methods II

Prerequisite: POLS 2003 and POLS/HIST 2153 or PSY/SOC 2053. Completion of MATH 1113 recommended. Introduction to elementary descriptive and inferential statistics, with an emphasis on applications in political science.

POLS 4043 American Constitutional Law

A comprehensive study of the United States Supreme Court's decisions in the evolution of American Government as seen in the leading cases dealing with judicial review, separation of powers, and federal systems; protection of personal rights, interstate commerce, taxation, and due process of law in economic regulation and control; and civil liberties and civil rights.

POLS 4103 Environmental Politics

An examination of environmental issues from a policy perspective. Although scientific questions are involved, emphasis is on the political process of environmental issues. Topics discussed include the actors, their power, limits to their power, and their impact on the environmental policy process. May not be taken after completion of POLS 5103 or equivalent.

POLS 4951-4 Undergraduate Research in Political Science

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

POLS 4963 Senior Seminar

A required course for senior History and Political Science majors. Course content will cover a directed seminar in Political Science. Research techniques will be emphasized.

POLS (HIST) 4971-6 Internship

Prerequisites: Junior or Senior standing, 2.75 grade point average, and consent of department head. A supervised placement in selected agency settings in student/trainee status under professional guidance of both an agency supervisor and a faculty member. Emphasis will be on providing hands-on experience in research, editing, cultural management, public service, or some other area related to the discipline. Written report required and minimum of 125 clock hours of supervision required per credit hour. May be repeated for a maximum of 6 hours credit.

POLS(HIST) 4981-3 Social Sciences Seminar

A directed seminar in an area of social sciences. The specific focus will depend upon research underway, community or student need, and the unique educational opportunity available. This course may be repeated for credit if course content differs.

POLS 4991-4 Special Problems in Political Science

Admission requires consent of department head.

Professional Studies

PS 3001 Portfolio Development for Prior Learning Assessment

Prerequisite: the student must have successfully completed 60 hours of credit which includes all general education requirements and 12 hours of coursework after being admitted to the Professional Studies degree. The basis for requesting credit for prior learning is the development of a portfolio with assistance from a faculty advisor. Every student requesting credit for prior learning must enroll in this course and complete a portfolio which demonstrates the college-level learning that has resulted from experiences outside a formal academic framework. The student utilizes this method to document knowledge acquired which is equivalent to upper-division college-level credit. Credit for PS 3001 applies only to the Bachelor of Professional Studies degree and cannot be applied toward any other program. Grading is on a Pass/Fail basis

PS3003 Special Problems

Prerequisites: Completion of the BPS Professional Core and permission of the program advisor. This course will provide an opportunity for the student to facilitate a process for identifying a specific problem in an actual industry or business environment relevant to the student's specialty area. The student will outline a formal plan of action for identifying the problem. The plan must include a broad scan of the specific area/operation selected including the names and titles of the individuals surveyed for input. The end product will be the development of a formal needs assessment which identifies deficiencies or areas of improvement. The needs should be prioritized on the basis of feasibility, cost, and urgency.

PS 3023 Professional Communications

Prerequisites: 6 hours of English Composition and COMS 1003 or BUAD 2003. This course supports career fields which require competencies in advanced professional communication. Course includes principles of effective professional communication using technology to generate professionally-prepared materials including formal correspondence, brochures, public relations materials, graphics, and technical documents.

PS 4006 Capstone Project

Prerequisite: PS 3003. This course capstones the process conducted in PS 3003 by requiring the student to demonstrate competencies required of a professional in the student's specialty area in an actual business or industry setting. The student will assume a leadership role in presenting the outcomes of the needs assessment to a group of company stakeholders. On the basis of empirical research conducted throughout the assessment process, the student will recommend relevant strategies for addressing the identified problem/s. A review of the literature will serve to either validate or reject the strategies selected. A continuous process improvement model will be developed along with a detailed continuous process improvement plan which must be approved and accepted by all relevant stakeholders. The final component of the course will require the student to demonstrate presentation ability, appropriate leadership styles, critical thinking, and communications skills in a formal presentation of the strategic plan to the group responsible for implementing the strategies.

PS 4201-12 Prior Learning Assessment Credit
Prerequisite: PS 3001. Based on a recommendation from the BPS Director/instructor and reviewed by the dean of Community Education and the Registrar, the portfolio assessment completed in PS 3001 will determine the number of hours that can be awarded for prior learning. This variable-credit course provides the opportunity for the student to enroll in the number of hours that were approved through the portfolio up to a maximum of 12 hours. Regular tuition charges will be applied. Credit for PS 4201-12 applies only to the Bachelor of Professional Studies degree and cannot be applied toward any other program. Grading is on a Pass/Fail basis.

PS 4951-4 Undergraduate Research in Professional Studies
On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

Psychology

PSY 2003 General Psychology
An introduction to basic concepts in the study of behavior and to elementary principles of genetics, individual differences, motivation, emotion, personality, sensation, and perception.

PSY 2023 Consumer Psychology
An introduction to the application of psychological principles to the study of the acts of individuals involved in obtaining and using economic goods and services, including the decision-making processes that precede and determine these acts. Emphasis is placed on the role of perception, learning, personality, and attitude change.

PSY 2033 Psychology of Adjustment
A course to provide a broad introduction to psychology as applied to human behavior. Focus is on the theoretical and experimental issues underlying the development and function of mental and emotional states. Emphasis is on normal functioning. \$20 testing fee.

PSY(SOC) 2053 Statistics for the Behavioral Sciences
Prerequisites: MATH 1113 and PSY 2003 or SOC 1003, or consent. An introduction to descriptive and inferential statistical methods pertinent to behavioral sciences research, including correlation, sampling distributions, t-tests, chi square and analysis of variance. Emphasis is upon the logical and applied aspects.

PSY 2074 Experimental Psychology
Prerequisite: PSY 2003 and PSY(SOC) 2053. A study of research methods in psychology. Emphasis is placed upon developing skills in data gathering and analysis, report writing and application of basic research strategies. Three hours lecture, two hours laboratory per week.

PSY 3003 Abnormal Psychology
Prerequisite: PSY 2003. Emphasis will be placed upon the etiology, symptoms, and treatment of the neuroses, psychoses, and personality disorders.

PSY(SOC) 3013 Psychosocial Aspects of Death and Dying
Prerequisite: Upper division standing. This course studies the psychosocial and sociological aspects of death. The course will provide a basic insight into the dynamics surrounding death from the individual and societal level, its impact on survivors, and the effect death has on the living. This course cannot be taken for credit after completion of PSY 4003.

PSY(CJ) 3033 The Criminal Mind
Prerequisite: PSY 2003 and CJ(SOC) 2003 or CJ(SOC) 2043. The course familiarizes students with various models, theories, and research regarding criminality from a psychological perspective. Genetic, constitutional, and biological factors will be emphasized, and some practical applications to dealing with criminals will be considered.

PSY 3043 Environmental Psychology
Prerequisite: PSY 2003. This course is designed to provide students with information on the reciprocal relationship between humans and their environment, both natural and man-made. Major topics to be considered include (but are not limited to) the following: noise, pollution, temperature, density, architectural influences on human behavior, cognitive mapping, and crowding.

PSY 3053 Physiological Psychology
Prerequisites: PSY 2003, BIOL 2124, or BIOL 1014. An introduction to the physiological correlates of behavior, with emphasis upon the nervous system.

PSY 3063 Developmental Psychology I
Prerequisite: PSY 2003. A study of how the maturation process affects an individual's physical and psychological state from conception through adolescence. Representative topics include (but not limited to) genetic influences, child cognitive processes, moral reasoning, and testing.

PSY 3073 Psychology of Learning
Prerequisite: Twelve hours of psychology. An introduction to the basic processes in learning and conditioning, including human and animal experimental findings. Emphasis will be placed on conditioning paradigms, reinforcement principles, memory functions and their use in behavior change.

PSY 3093 Industrial Psychology
Prerequisite: PSY 2003. A survey of psychological applications in industrial settings with emphasis upon selection, placement, and training techniques; organizational theory; and decision-making processes.

PSY(SOC) 3133 Self and Society
Prerequisite: SOC 1003 or PSY 2003. A sociological survey of the ways in which social structure and personality interact. Topics typically covered are: socialization, attitudes and value formation and change, and group influences upon self-concept and self-esteem.

PSY 3141-4 Seminar in Psychology
A directed seminar in an area of psychology. The specific focus will depend upon research underway, student need, and current developments in the field of psychology. May be repeated for credit if course content differs.

PSY 3153 Theories of Personality
Prerequisite: Six hours of psychology. An introduction to the various theoretical viewpoints of the normal personality structure and its development.

PSY 3163 Developmental Psychology II
Prerequisite: PSY 2003. The study of how the maturation process affects an individual's physical and psychological state from adolescence through old age. Representative topics include (but not limited to) early, middle, and late adulthood biological, psychosocial and cognitive development.

PSY (BIOL) 3184 Animal Behavior

Spring of even years. Prerequisites: sophomore standing in biology or psychology, or approval of instructor. An introductory course in animal behavior covering behavioral responses in primitive and advanced animals exposed to a wide range of environmental and social conditions. Laboratory exercises will include field as well as in-lab exercises and will focus on observational techniques and analyses of behavioral patterns in vertebrates and invertebrates. Lecture three hours, laboratory two hours. \$20 laboratory fee.

PSY 4013 History of Psychology

Prerequisite: PSY 2003. A survey of the developments in psychology from the ancient Greeks to the emergence of psychology as a modern experimental science.

PSY 4033 Psychological Tests and Measurements

Prerequisites: Twelve hours of psychology and PSY(SOC) 2053. Theory of psychological testing, statistical procedures, and training in administration, scoring and profiling of various tests of ability, achievement, interests, and personality. \$20 testing fee.

PSY(SOC) 4043 Social Psychology

Prerequisite: Upper division standing or permission. The study of how individuals are influenced by the actual or implied presence of other persons. Emphasis is placed on attitudes, social cognition, social influence, aggression, altruism, self and other perception.

PSY 4053 Psychology of Perception

Prerequisite: Nine hours of psychology or consent. The study of general perceptual process. While the main senses will be covered, emphasis will be placed on visual functioning. The role of perception in organismic adaptation will be explored.

PSY 4073 Cognitive Psychology

Prerequisite: 60 hours including 9 hours of psychology or permission of instructor. A study of the basic principles of mental processes, and their influence on behavior. Specifically, the course focuses on the conscious and unconscious processes involved in the acquisition, storage, transformation, and use of knowledge.

PSY 4234 Field Placement

Prerequisites: PSY 2023 or 3093, and PSY(SOC) 2053 and PSY 2074 (or comparable), senior major, and mutual consent of advisor, supervising faculty and industry supervisor. This course is a jointly supervised field placement in an area business or industry. Emphasis is placed on integration of theory and classroom work with on-the-job experience. The placement is designed for students who are considering work in the area of industrial/organizational or consumer psychology. The purchase of professional liability insurance is required.

PSY 4951-4 Undergraduate Research in Psychology

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

PSY 4991-4 Special Problems in Psychology

Prerequisite: Eighteen hours of psychology and prior permission of instructor. Independent work under individual guidance of a faculty member.

Reading

READ 0103 College Reading Skills

A course designed to develop reading skills through perception training, vocabulary building, comprehension training, and active listening exercises. Individual diagnosis and prescription is emphasized. The grade in the course will be computed in semester and cumulative grade point averages, but the course may not be used to satisfy general education requirements nor provide credit toward any degree. A student who is placed in READ 0103 must repeat the course until he or she earns a grade of "C" or better. A student who makes a "D" or "F" in READ 0103 must repeat the course in each subsequent semester until he or she earns a grade of "C" or better.

Recreation and Park Administration

Coeducational Activities

(May be taken for General Education credit)

RP 1002 Backpacking

This course is an introduction to basic backpacking skills, equipment, food, and backcountry travel. Dayhikes and overnight hikes. Students will need to provide own personal equipment (backpack, sleeping bag, etc.) and be willing to share tents, stoves, cooking gear, etc. with other students in the course. Some students may need to borrow or purchase such gear depending on the equipment owned by members of the class. \$50 course fee required.

RP 1011 Sport Hunting

An introduction to the fundamentals of sport hunting, materials, and personal skills. Emphasis on state game laws, personal equipment and usage, game species and their natural habitats, and firearm safety. Arkansas Hunter Safety certification awarded with successful completion.

RP 1021 Boating Education

This course will take students through the Arkansas Game and Fish Commission Boating Guide. Those who successfully complete the course will be awarded Boating Safety Certification. A variety of audio-visual presentations will be used, and participation in one weekend day of actual boating experience is required. Certification is awarded upon completion.

RP 1031 Introduction to Cycling

Introduction to Cycling is designed to introduce the beginner biker to the basics needed for lifelong enjoyment of this recreational activity and sport. Students will be introduced to techniques of road cycling and off-road cycling. Emphasis on choosing clothing and equipment, maintenance, and riding skills. Students will have riding opportunities at area trails, as well as classroom instruction. Participants are expected to provide their own bikes and associated gear and equipment. \$50 fee required to cover transportation to area trails.

RP 1041 Principles and Techniques of Fishing

This course provides an introduction to the sport of fishing. Students will learn to identify species of freshwater fish, emphasizing fish inhabiting Arkansas streams and lakes. Students will learn casting techniques, ethics, catch-and-release techniques, knot tying, and lure and bait selection. Cleaning and cooking your catch of the day will be covered. Arkansas fishing license required. Bring your own pole and tackle. \$10 lab fee required. Field trips to area fishing holes.

Academic Courses**RP 1013 Principles of Recreation and Park Administration**

A study of the history of the recreation and park profession and the basic sociological and ecological intermix of contemporary recreation and park services.

RP 1993 Basic Forest Firefighting

This class is taught jointly by the U.S. Forest Service and ATU using classroom theory and weekend field exercises which will enable successful candidates to obtain the "Red Card" recognized by most federal and many state firefighting agencies as a minimum requirement for wildland fire firefighting certification. This class consists of the following wildland fire training courses recognized by the National Wildland Coordinating Group (NWCG): S-130 Basic Firefighting; S-190 Introduction to Fire Behavior; S-110 Wildland Fire Suppression Orientation; I-100 Introduction to Incident Command System; and Standards for Survival. These courses will be taught together to provide a complete picture of the basics of forest firefighting. This training is required before any person can participate on a wildland fire suppression crew for the U.S. Forest Service, other federal agencies and most other state wildland fire agencies. Instruction will be by U.S. Forest Service certified instructors and RP faculty.

RP 2003 Recreation Programming

Recreation program planning, supervision, and evaluation. This course examines the theory, principles, and leadership techniques of programming for individuals and groups in a variety of recreation settings, including community, institutions, and camps. May not be taken for credit after completion of RP 2002 and RP 2012.

RP 2013 Landscape Materials and Construction

Use of plant and construction materials and their application to environmental design, including a study of identification and effectiveness through texture, density, color, and relationship to structures and site development.

RP 2033 Recreation Leadership

A study of the processes, methods, and characteristics of leadership and supervision in the delivery of leisure services.

RP (HA) 2133 Introduction to Travel and Tourism

An introduction to travel and tourism, its components and relationship to the hospitality industry. The course will explore the current and future trends in travel and tourism and the effects on the economy, as well as the social and political impacts of travel and tourism.

RP 3013 Recreation for Special Populations

Development of an understanding of disabled sub-populations and its relationship to recreation programming and administration for agencies at the local, state, and federal level of responsibilities.

RP 3023 Camp Administration

Prerequisite: Junior standing. Theory and principles of camp administration, programming, leadership, and supervision in public, private, and school camps. Field trips, school camp.

RP 3033 Commercial Recreation

An introduction to the spectrum of planning, delivery and assessment of goods and services in the commercial sector of recreation.

RP 3034 Site Planning and Design

Fundamentals of the site planning process and application to park and recreation development, including consideration of factors both external (user preferences) and internal to the site (function, organization and aesthetic treatment). Emphasis on resource capabilities and potentials. Lecture two hours, laboratory four hours.

RP(HA) 3043 Work Experience

By permission. Supervised field application of class skills and knowledge in Parks, Recreation and Hospitality work situations. Students are given the opportunity to take part in meaningful management and work experiences in actual work situations under the supervision of both university faculty and professionals in the field. Minimum of 100 clock hours of work experience.

RP 3053 Natural Resource Management and Planning

Study of the economic, social, political, and physical factors of the natural environment and methods to guide, direct, and influence orderly growth and development.

RP 3063 Outdoor Education

The historical development of outdoor education in America. Educational theory, practice and significance. Detailed analysis of typology, organization, administration and program planning for school outdoor-education programs. Field trips, school camp.

RP 3093 Interpretive Methods

An analysis of various interpretive techniques, interpretive planning, and utilization of interpretation to obtain management goals. Students will plan, design and implement interpretive programs using various media.

RP (HA) 3133 Tourism Planning

An examination of the tourism planning process and techniques. Topics include tourism as a system, levels of planning, environmental, cultural and economic components, attractions, transportation, infrastructure and marketing.

RP 3503 Recreational Sport Management

An overview of recreational sport management in various settings including program components and techniques. Topics include informal, intramural, club, extramural, and instructional sports programming; values of recreational sports; administration and operation of recreational sports; terminology and career opportunities in various sports settings. This is a lecture course with required class participation.

RP 3763 Introduction to Turfgrass Management

Pre or Corequisites: BIOL 2134 and CHEM 1114. An introduction to turf management emphasizing structure, growth, adaptation, and management of turfgrass. Methods for establishment, fertilization, mowing, cultivation, irrigation and pest management.

RP 3791 Turfgrass Management: Equipment

An introduction to turfgrass equipment. Visits to golf course or other turfgrass sites where students will examine and operate various types of turf equipment. Equipment maintenance discussed. Equipment design and selection discussed. \$25 travel fee.

RP 3793 Turfgrass Pest Control

Pre or Co-requisite: RP 3763. An introduction to the integrated management of pests affecting turfgrass. Maintenance practices related to pest and abiotic turfgrass problems, safety, and materials.

RP 3993 Wildland Fire Practices in Natural Resource Management.

Prerequisites: RP 1993 or permission. Advanced study of the organization, deployment, and techniques of fire suppression applicable to wildfires affecting residences, outbuildings, and other human-structure barriers in remote areas and outlying suburban locales. Particular emphasis on wildland structure and urban interface fire suppression problems. This is a science-based course. Emphasis is placed on: (1) uncontrolled wildland fire and the many positive and negative impacts with which fire personnel must deal; (2) planning and implementing controlled burn projects to attain desired future conditions and reduce fire hazards, and (3) the dilemma of ever-expanding wildland/urban interface issues. The overall purpose of this course is to provide the student with integral fire knowledge and skills necessary to become an effective member of a fire/natural resource management team. Weekend field exercises required.

RP(HA) 4001 Internship Preparation

Prerequisites: PRHA major, senior standing, and completion of RP/HA 3043 (if required for major) or permission of department head. Preparation for the internship experience. This course is graded Pass/Fail.

RP(HA) 4003 Fundamentals of Tourism

Prerequisites: Permission of instructor or PRHA major. An overview of tourism, the components of tourism, and how it relates to the hospitality industry. Exploration of current and future trends and the effects on the economy, as well as social and political impacts of tourism are examined. Web-based course.

RP 4013 Recreation and Park Administration

Prerequisite: Six hours of RP courses. A study of the administrative process of planning, organizing, staffing, directing, evaluating, budgeting, and coordinating of recreation and park agencies. Special emphasis on budget, personnel, and supervisory practices of the decision-maker.

RP 4023 Research Methods

Prerequisite: Twelve hours of RP courses. An introduction to the spirit and theory of research. The scientific method and application to the recreation and parks profession. Methods of problem identification, statement of testable hypothesis, design, summation of findings, research reporting, and writings will be examined.

RP 4042 Field Seminar in Interpretive Methods

This off-campus course will be of one-week duration conducted at recreation and park facilities in Arkansas and the nearby region. The course will center on discussion of interpretive facilities, techniques, problems and innovations with leading professionals on site. A fee of \$100 will be assessed to cover transportation, food and entry fees for some sites. Lodging is usually provided by park agencies at the site free or at a very low cost.

RP 4053 Water Resources Development

A study of water resources with emphasis on surface supply and small watershed and reservoir recreation. Supply and pollution in federal, state, local and private water-use allocation will be considered.

RP 4063 Park Operations

Prerequisite: COMS 1003 or equivalent. Basic principles, practices, and problems pertaining to the management of public park systems with emphasis on maintenance and operation schedules, construction and maintenance equipment, employee safety, office procedures, law enforcement, personnel management, and public relations.

RP 4073 Principles and Techniques of Therapeutic Recreation

Prerequisite: RP 3013 or permission of instructor. A professional course which examines the foundation, theory, philosophy, and historical significance of therapeutic recreation. Emphasis on the therapeutic recreation process as it relates to program development and service delivery for individuals with illnesses and/or disabilities in various clinical and community settings.

RP(HA) 4093 Resort Management

Prerequisites: Junior standing and nine hours of RP or HA courses or by permission. An in-depth study of resorts with respect to their planning, development, organization, management, marketing, visitor characteristics, and environmental consequences.

RP 4103 Recreation Law and Policy

An examination of the relationship between recreation and the law. Specific topics include liability negligence, contracts, safety codes, law enforcement, insurance, and administration policy. Identification of legal decision-making organizations and the court system, including the policy dimensions of land acquisition, personnel disputes, and current issues in land use.

RP(HA) 4113 Personnel Management in Parks, Recreation, and Hospitality Administration

Prerequisites: Junior standing and nine hours of RP or HA courses. An overview of personnel considerations in various Recreation and Park agencies and the Hospitality industry. Laws, legal issues, structure, staffing, motivation, training, conduct, policies and other aspects of agency/industry personnel relations will be examined using case-studies, as well as other methods.

RP(HA) 4116 Internship

Fall, spring and summer semesters. Parks, Recreation, and Hospitality Administration majors only. Prerequisites: Senior standing, current certifications in CPR, Standard and Advanced First Aid, consent of department head and completion of all other courses applicable to degree. Placement in selected agency settings as a student intern under professional guidance of both agency supervisor and faculty. Emphasis will be placed on application of classroom theory to agency requirements which fulfill student's individual career interest. No prior experience credit will be granted. Minimum of 600 clock hours during a minimum of 15 weeks of supervised internship is required. Student cannot document more than 40 hours of work experience per week. A written report is required within two weeks of internship completion. \$100 supervisor travel fee required.

RP 4173 Therapeutic Recreation Assessment and Documentation

Prerequisites: RP 4073 or permission of instructor. This course is an examination of the various assessment tools, styles of documentation, and methods of assessment and documentation utilized in therapeutic recreation services. The purpose of this course is to provide students with the basic skills and knowledge necessary to conduct therapeutic recreation assessments and to properly document health care information.

RP 4273 Administration and Operation of Therapeutic Recreation Programs

Prerequisites: RP 3013 and 4073 or permission of instructor. Program design and planning for effective administration of client-centered services for special populations. Management of therapeutic recreation services including standards of practice, clinical supervision, reimbursement, marketing, budgeting, and writing policies and procedures.

RP 4373 Interventions in Therapeutic Recreation

Prerequisites: RP 3013, RP 4073, or permission of instructor. This course is designed to provide an understanding of the various interventions utilized in therapeutic recreation services and to develop technical competencies necessary for the provision of quality therapeutic recreation services. Emphasis will be placed on the skillful application of various processes and techniques utilized to facilitate therapeutic changes in the client.

RP 4753 Sports Field Management and Design

Pre or co-requisites: RP 3034, 3763, and 3793 or permission. A survey of design and management practices for turfgrass sports fields. Personnel and budgeting requirements for operations and maintenance. \$25 travel fee.

RP 4763 Golf Course Operations and Design

Pre or Co-requisites: RP 3034, 3763, and 3793. Golf course turfgrass management as influenced by golf course design, including operations, financial analysis, personnel, and environment. \$25.00 travel fee.

RP 4951-4 Undergraduate Research in Recreation and Park Administration

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

RP(HA) 4991-3 Special Problems and Topics

On demand. Investigative studies and special problems and topics related to parks, recreation, and hospitality administration.

Rehabilitation Science

RS 2003 Introduction to Rehabilitation Services

A survey of the history, philosophy, and roles of the rehabilitation and social services movement. In addition, the course will focus on public attitudes toward people with disability, adjustment to disability, and an orientation to the various community resources which can be utilized toward the rehabilitation of people with disabilities.

RS 3004 Medical and Psychosocial Aspects of Disability

A study of the etiology, treatment and prognosis of various disabling conditions. Emphasis will be placed on medical information as received in medical reports, and as related to vocational functioning and to the everyday psychological and social adjustment problems associated with disability. This course may not be taken for credit after completion of RS 3003.

RS 3013 The World of Work

A survey of the world of work emphasizing the role of work in our society, how disability changes one's work role, how career choices are made, and placement techniques. \$20 testing fee.

RS 3023 Principles and Techniques of Rehabilitation Services

Prerequisite: Junior standing and RS 2003. An introduction to the casework process emphasizing principles of case management, interagency relations and interviewing skills.

RS 3033 Introduction to Vocational Rehabilitation and the Vocational Rehabilitation Process

An overview of the history, philosophy, and legal basis of vocational rehabilitation plus an in-depth study of the case process. This class will emphasize the vocational rehabilitation process through studying closed case files and case recording procedures.

RS 3043 Introduction to Social Services and the Social Service Case Process

An introduction to the history, philosophy, and legal basis of the social services movement. This class will also emphasize the social service case process and case management practices.

RS 3053 Rehabilitation Approaches in the Correctional Setting

Prerequisite: SOC(CJ) 2043 or consent of the instructor. A comparative study of rehabilitation approaches in working with adult and juvenile public offenders. Approaches to be studied include: prisons, training schools, camps, halfway houses, work release, study release, preparole classes, vocational training.

RS(CJ) 3063 Probation and Parole

Prerequisite: SOC(CJ) 2003 or SOC(CJ) 2043. A survey of the philosophy, origin, development, rise, and evaluation of probation and parole as correctional techniques.

RS 3073 Organization and Structure in the Rehabilitation-Human Services Setting

This course will provide the student with an overview of organizational and administrative structure in the rehabilitation-human services setting. Additionally, it will focus on the dynamics involved in developing a successful managerial style.

RS 3083 Supported Employment and Special Populations

Prerequisite: RS 3013 or consent. An introduction to the ideas, philosophies, models, concepts, and issues that characterize supported employment. Applications with different disability populations will be reviewed.

RS 3093 Rehabilitation Programming and the Elderly

Prerequisite: SOC 3173 or consent of the instructor. A study of aging and the elderly from a rehabilitation viewpoint. This course will focus on intervention strategies, actual and potential, that might enable other people to maximize their potential and affect the needs for institutionalization.

RS 3123 Ethics in Human Services

A study of personal values, CRCC, ACA, and APA professional guidelines, and decision making models that will assist future human service practitioners to effectively deal with ethical dilemmas. This course will emphasize critical thinking and problem solving, and will utilize instructor and student generated dilemmas.

RS 3133 Multicultural Issues in Human Services

An introduction to issues of multiculturalism and diversity and the importance of understanding these issues when working with individuals. This class will emphasize understanding ones' own culture, examine various cultures including disability, and stress the importance of understanding each individual in relationship to his/her culture.

RS 3141-4 Rehabilitation Science Seminar

A directed seminar in an area of rehabilitation science. The specific focus will depend upon research underway, community or student need, and the unique educational opportunity available. May be repeated for credit if course content differs.

RS 3243 Social Services for Individuals and Families

Prerequisite: RS 3043 or consent of instructor. A study of the varied and numerous services offered by federal, state, and privately-funded social service programs with an emphasis on protective services, foster care, and adoption services.

RS 4012 Internship in Rehabilitation Services
(Twelve-hour course.) Prerequisite: RS 2003, grade of C or higher in RS 3023, rehab major, senior standing, 2.00 cumulative grade point average, and consent of the instructor. A full-time, one semester supervised internship in a rehabilitation or social services setting, either public or private. Emphasis will be placed on the student acquiring first-hand experience and entry level skills in practitioner roles such as case management, interviewing and counseling, and coordination of client services among the various community helping services. The purchase of professional liability insurance is required.

RS 4024 Field Placement in Rehabilitation Science

Prerequisite: RS 2003, grade of C or higher in RS 3023, junior standing, 2.00 grade point average and consent of the instructor. A supervised 14-week field placement in which the student may either be placed in one agency setting or if a broader experience is desired may rotate among several agencies. Emphasis will be placed upon gaining an understanding of the community context and coordination of client services among the various rehabilitation and helping agencies. The purchase of professional liability insurance is required.

RS 4034 Field Placement Related to Vocational Rehabilitation

Prerequisite: RS 2003, grade of C or higher in RS 3023, junior standing, completion of at least six hours in the related emphasis area, 2.00 grade point average, and consent of the instructor. A supervised 14-week field placement in a setting related to vocational rehabilitation. Emphasis will be placed on the student's acquiring first-hand experience in practitioner roles such as case management, interviewing and counseling, and coordination of client services among the various community helping services. The purchase of professional liability insurance is required.

RS 4044 Field Placement Related to Aging

Prerequisite: RS 2003, grade of C or higher in RS 3023, junior standing, completion of at least six hours in the related emphasis area, 2.00 grade point average, and consent of the instructor. A supervised 14-week field placement in a setting related to aging. Emphasis will be placed on the student's acquiring first-hand experience in practitioner roles such as case management, interviewing and counseling, and coordination of client services among the various community helping services. The purchase of professional liability insurance is required.

RS 4054 Field Placement Related to Corrections

Prerequisite: RS 2003, grade of C or higher in RS 3023, junior standing, completion of at least six hours in the related emphasis area, 2.00 grade point average, and consent of the instructor. A supervised 14-week field placement in setting related to corrections and delinquency. Emphasis will be placed on management, interviewing and counseling, and coordination of client services among the various community helping services. The purchase of professional liability insurance is required.

RS 4064 Field Placement Related to Social Services

Prerequisite: RS 2003, grade of C or higher in RS 3023, junior standing, completion of at least six hours in the related emphasis area, 2.00 grade point average, and consent of the instructor. A supervised 14-week field placement in a setting related to social services. Emphasis will be placed on the student's acquiring first-hand experiences in practitioner roles such as case management, interviewing and counseling, and coordination of client services among the various community helping services. The purchase of professional liability insurance is required.

RS 4074 Field Placement for Psychology and Sociology Majors

Prerequisite: RS 2003, grade of C or higher in RS 3023, fifteen hours in major, senior standing, 2.00 grade point average, and mutual consent of the student's advisor, the supervising faculty member, and the director of Rehabilitation Science. A jointly supervised field placement in a human services agency setting, either public or private. Emphasis will be placed on the student's acquiring first-hand experience in practitioner roles as they relate to his major and special interest. The purchase of professional liability insurance is required.

RS 4084 Field Placement Related to Child Welfare Services

Prerequisite: RS 3043, RS 3243, grade of C or higher in RS 3023, senior standing, completion of at least six hours in the related emphasis area, 2.50 grade point average, and consent of the instructor. A supervised 14-week field placement in a Division of Children and Family Services setting. Emphasis will be placed on the student's acquiring first-hand experiences in practitioner roles such as case management, interviewing, risk assessment, interagency collaboration, crisis management, and problem solving. The purchase of professional liability insurance is required.

RS 4123 Survey of Counseling Theories

Prerequisites: Nine hours of psychology to include PSY 2003, PSY 3063, and PSY 3003, or PSY 3153, senior standing, or consent of the instructor. A comparative study of the major theories of counseling, stressing their philosophical views of mankind, assumptions, techniques, strengths, and weaknesses.

RS 4133 Seminar in Severe Disabilities

A study of what makes a disabling condition a severe disability. This course will stress independent research and class presentations by the students dealing with the various severe disabilities.

RS 4143 Rehabilitation of the Developmentally Disabled

Prerequisite: PSY 2003, RS 2003, or consent. A study of the delivery of services to, and the rehabilitation of, those handicapped individuals classified as being developmentally disabled, i.e., mental retardation, cerebral palsy, and epilepsy. Emphasis will be placed on prevocational, vocational, and community-living training for such individuals and the planning required for the provision of such services.

RS 4153 Work Evaluation in Rehabilitation

Prerequisite: RS 3013 or consent. A study of the use of work evaluation as a part of the rehabilitation process, emphasizing the philosophy, development and application of work evaluation methods, and use of work evaluation results in rehabilitation services. \$20 testing fee.

RS 4163 Substance Abuse

Prerequisite: RS 2003, PSY 2003, SOC 1003, or consent of the instructor. A study of drug abuse emphasizing etiology, patterns of use and abuse, and problems related to research and approaches to treatment.

RS 4173 Family Centered Services

Prerequisite: RS 3023 and 3243 or consent of the instructor. An advanced course focusing upon family and community strengths and child welfare practice.

RS 4183 Family Services Seminar

Prerequisite: RS 3023 and 3243 or consent of the instructor. A capstone course for students emphasizing child welfare services.

RS 4951-4 Undergraduate Research in Rehabilitation Science

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

RS 4991-4 Special Problems in Rehabilitation Science

Prerequisites: Twelve hours of rehabilitation science and prior approval of the Director of Rehabilitation Science. Independent work under individual guidance of a staff member.

Russian

RUSS 1014 Beginning Russian I

Emphasis on conversation; introduction to basic grammar, reading, writing, and culture.

RUSS 1024 Beginning Russian II

Continued emphasis on conversation and fundamental language skills.

RUSS 2014 Intermediate Russian I

Prerequisite: Beginning Russian II (RUSS 1024) or equivalent. Instruction designed to develop communication skills and basic knowledge of grammar, reading, writing, and culture.

RUSS 2024 Intermediate Russian II

Prerequisite: Intermediate Russian I or equivalent. Instruction designed to enhance communication skills and knowledge of grammar, reading, writing, and culture.

Secondary Education

SEED 2002 Introduction to Secondary Education

Prerequisite: Sophomore standing or departmental approval. This course is designed to help secondary teacher candidates understand the field of education systemically and to understand the professional roles and ethical responsibilities required of the professional secondary educator. The course consists of classroom instruction and a guided field component. A grade of "C" or higher in the course is required in order to be eligible for admission into Stage II of Teacher Education.

SEED 3552 Adolescent Development

The primary purpose of this course is to prepare teacher education candidates for classroom interaction by tracing influences of normal human development in all domains and showing how heredity and environmental factors affect the individuals' capacity to learn and function in a school environment. The teacher candidate will examine current research, concepts and issues related to normal adolescent development as well as exceptionalities that may be present. A range of cultural, social, and cognitive factors will be explored through reading, discussion, observation, literature search, interviews and case studies.

SEED 3702 Introduction to Educational Technology

This is a research-based course involving applications of media techniques to facilitate learning. Media presentations are planned and implemented using practical and theoretical considerations about learning characteristics, exceptionalities, and cultural differences. Various projection techniques as well as microcomputer applications are utilized.

SEED 4052 Adolescent Exceptionalities

Prerequisite: Admission to Stage II of the teacher education program. A study of the major areas of diversity including the mentally retarded, learning disabled, gifted, emotionally disturbed, children from economically disadvantaged homes, and their special needs in a school program. May not be taken for credit after completion of EDFD 5053, EDFD 4052, or repeated for credit as EDFD 5052 or equivalent.

SEED 4063/5063 Educators-in-Industry

Each semester on demand. A course devoted to career awareness in relation to the modern workplace. It is conducted in cooperation with local businesses and industries. The course involves research, on-site instruction, and work experience.

SEED 4503 Seminar in Secondary Education

Prerequisites: Admission to Stage II and Student Teaching. This course is to be taken concurrently with SEED 4909/4809. This course is designed to provide secondary teacher candidates with knowledge and understanding of the history of American Education, school law, and other contemporary education issues. This course will also address teaching/learning strategies for content area learning and assessment.

SEED(VOBE) 4556 Classroom Application of Educational Psychology

Prerequisite: Admission to Stage II of the Teacher Education Program. This course introduces secondary teacher candidates to educational psychology as a research-oriented discipline and a science of practical application. The course also requires that students apply the theories and principles to instructional planning, teaching, managing and assessing students. The course consists of classroom instruction and a field component.

SEED 4809 Teaching in the Elementary and Secondary School

Prerequisites: Admission to Stage II and student teaching and concurrent enrollment in SEED 4503. A minimum of twelve weeks of supervised full-time student teaching at both the elementary and secondary levels. Meets requirements for K-12 licensure in art and music and licensure at both the elementary and secondary levels for physical education. Fee \$100.

SEED 4909 Teaching in the Secondary School

Prerequisites: Admission to Stage II and student teaching and concurrent enrollment in SEED 4503. A minimum of twelve weeks of supervised full-time student teaching at the secondary level. Fee \$100.

SEED 4991-4 Special Problems in Secondary Education

Each semester on demand. Prerequisite: Senior standing and approval of department head. Individual study of significant topics or problems relating to education under the guidance of an assigned faculty member.

Sociology

SOC 1003 Introductory Sociology

An introduction to the nature of society, social groups, processes of interaction, social change, and the relationship of behavior to culture.

SOC(CJ) 2003 Introduction to Criminal Justice

An overview of the criminal justice system and the workings of each component. Topics include the history, structure and functions of law enforcement, judicial and correctional organizations, their interrelationship and effectiveness, and the future trends in each.

SOC (CJ) 2033 Social Problems

Prerequisite: SOC 1003. A sociological analysis of contemporary social problems including inequalities, deviance, population changes, and troubled institutions.

SOC(CJ) 2043 Crime and Delinquency

Prerequisite: SOC 1003 or SOC(CJ) 2003. A study of the major areas of crime and delinquency; with emphasis on theories of crime and the nature of criminal behavior.

SOC(PSY) 2053 Statistics for the Behavioral Sciences

Prerequisite: MATH 1113 and PSY 2003 or SOC 1003, or consent. An introduction to descriptive and inferential statistical methods pertinent to behavioral science research, including correlation, sampling distributions, t-tests, chi square and analysis of variance. Emphasis is upon the logical and applied aspects.

SOC 2073 History of Social Thought

A study of the historical development of social thought. May not be taken for credit after completion of SOC 4023, PHIL 4053, or equivalent.

SOC 2083 Sociological Theory

A survey course of sociological theories and theory development from the classical period to post-modernism.

SOC 3003 Sociology of Complex Organizations

Prerequisite: SOC 1003. An extensive and intensive investigation of theories and research related to the sociology of complex organizations. The course aims for a focus on both micro and macro perspectives while maintaining an emphasis on the pragmatics of social organizations and organizational behavior.

SOC(PSY) 3013 Psychosocial Aspects of Death and Dying

Prerequisite: Upper division standing. This course studies the psychological and sociological aspects of death. The course will provide a basic insight into the dynamics surrounding death from the individual and societal level, its impact on survivors, and the effect death has on the living. This course cannot be taken for credit after completion of PSY 4003.

SOC 3023 The Family

Prerequisite: SOC 1003. A study of the American family institution with emphasis upon role relationships, norms, and models. Some attention is given to cross-cultural comparisons.

SOC 3053 Population Problems

A demographic analysis of population. Emphasis is upon the United States with cross-cultural comparisons.

SOC 3063 Communities

Prerequisite: SOC 1003. An exploration and analysis of the sociological concept of community from classical approaches to recent debates. May not be taken for credit after completion of SOC 2063.

SOC(CJ) 3083 Social Deviance

Prerequisite: SOC 1003 or SOC(CJ) 2003. AN introduction to the sociological and criminological study of human deviance. Various theories of deviance will be examined and applied to real life examples.

SOC 3093 Sociology of Education

Prerequisite: SOC 1003. A study of education as a social system, its organizational characteristics, and its inter-relationships with other social systems such as the family, religion, economics, government, and politics.

SOC(CJ) 3103 The Juvenile Justice System

Prerequisite: SOC(CJ) 2003. An in-depth look at the juvenile justice system including the structure, statuses and roles as well as current issues, problems, and trends.

SOC 3113 Social Movements and Social Change

Prerequisite: SOC 1003. An examination of past and current social movements and their effects on social policy and social change. Topics will include classical and contemporary theories of social movements and social change.

SOC(PSY) 3133 Self and Society

Prerequisite: SOC 1003 or PSY 2003. A sociological survey of the ways in which social structure and personality interact. Topics typically covered are: socialization, attitudes and value formation and change, and group influences upon self-concept and self-esteem.

SOC(CJ) 3153 Prison and Correction

Prerequisite: SOC 1003 and SOC(CJ) 2033. An introduction to and analysis of contemporary American corrections. Emphasis will be on current and past correctional philosophy, traditional and modern correctional facilities, correctional personnel and offenders, new approaches in corrections, and the relationship of corrections to the criminal justice field.

SOC 3163 Introduction to Social Research

Prerequisite: SOC 1003 and SOC(PSY) 2053. An introduction to research methodology, with emphasis upon conceptualization, design, and processes.

SOC 3173 Social Gerontology

Prerequisite: SOC 1003. An introduction to the sociology of aging: content provides general and specific knowledge regarding the aging process. Implications for economic, political, and family institutions are emphasized.

SOC 4003 Minority Relations

Prerequisite: SOC 1003. A study of minority groups with emphasis upon discrimination, socio-historical characteristics and processes of change. Minorities considered include racial, ethnic, and gender.

SOC(PSY) 4043 Social Psychology

Prerequisite: Upper division standing or permission. The study of how individuals are influenced by the actual or implied presence of other persons. Emphasis is placed on attitudes, social cognition, social influence, aggression, altruism, self and other perception.

SOC 4053 Sociology of Health and Illness

Prerequisite: SOC 1003. An in-depth look at the sociology of health and illness including an examination of the social structures related to the medical system, the social psychology of health and illness, a comparative analysis of sick role behavior as well as the study of social causes and consequences of health and illness.

SOC 4063 Social Stratification

Prerequisite: SOC 1003. A study of social class and consequences for society and individuals.

SOC 4073 Sociology of Religion

Prerequisite: SOC 1003. A study of the various theoretical explanations of religion, including its relationship to the larger society and the world system.

SOC 4141-4 Seminar in Sociology

A directed seminar in an area of sociology. The specific focus will depend upon research underway, community or student need, and the unique educational opportunity available. May be repeated for credit if course content differs.

SOC(CJ) 4206 The Law in Action

Prerequisite: SOC/CJ 2043, 9 hours of Criminal Justice coursework, senior classification, and instructor permission. Offered only in the summer. An examination of sociological theories of law and main currents of legal philosophy is followed by participant observation of actual community legal agencies, including police, courts, and others as available.

SOC 4951-4 Undergraduate Research in Sociology

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

SOC 4991-4 Special Problems in Sociology

Prerequisite: Prior approval by instructor. Content will be determined by specific curriculum review and student need.

Spanish

SPAN 1014 Beginning Spanish I

Introduction to conversation, basic grammar, reading, and writing. Four hours of classroom instruction. Advanced placement and credit by examination are available to students who have previously studied Spanish. One hour of foreign language lab per week is required.

SPAN 1024 Beginning Spanish II

Continued instruction in grammar and fundamental language skills. Four hours of classroom instruction. One hour of foreign language lab per week is required.

SPAN 1063 Basic Spanish for Medical and Social Services

Prerequisite: SPAN 1014 and 1024. Useful terminology and expressions for the medical and social-service situation, with a minimum of grammar.

SPAN 2014 Intermediate Spanish I

Prerequisite: SPAN 1024 or equivalent. Instruction designed to develop greater facility in fundamental skills and more extensive knowledge of grammar. Four hours of classroom instruction. One hour of foreign language lab per week is required.

SPAN 2024 Intermediate Spanish II

Prerequisite: SPAN 2014 or equivalent. Instruction intended to complete the survey of the basic grammar of the language and to provide the mastery of fundamental skills essential for enrollment in upper-level Spanish courses. Four hours of classroom instruction. One hour of foreign language lab per week is required.

SPAN 3003 Conversation and Composition I

Prerequisite: SPAN 2024 or permission of instructor. Further study of Spanish grammatical systems with practice in composition and conversation based on analysis of short texts (newspaper articles, short stories, plays, poetry). Students are expected to use Spanish in oral and written expression.

SPAN 3013 Conversation and Composition II

Prerequisite: SPAN 3003 or permission of instructor. Continuation of SPAN 3003.

SPAN(ENGL, FR, GER, SPH) 3023 Introduction to Linguistics

Prerequisites: ENGL 1023 or equivalent and SPAN 2024 or equivalent. A study of basic concepts in language, comparative characteristics of different languages, and the principles of linguistic investigation.

SPAN 3113 Business Spanish

Prerequisite: SPAN 3003 or permission of instructor. The study of business culture, terminology, presentations and cases in the Hispanic world. This course will present a detailed examination of business practices in Latin America and other Spanish speaking countries. Emphasis will be given to business protocols when conducting business correspondence, personal interviews, and appointments, among others. Attention will also be given to the use of technology in business.

SPAN 3123 Spanish Civilization and Culture

Prerequisite: SPAN 3013 or permission of instructor. Study of the geography, history, arts, institutions, customs and contemporary life of the Spanish people.

SPAN 3133 Spanish-American Civilization and Culture

Prerequisite: SPAN 3013 or permission of instructor. Study of the geography, history, arts, institutions, customs, and contemporary life of the peoples of Spanish America, with some attention to the major pre-Columbian civilizations.

SPAN (FR, JPN, GER) 3143 Study Abroad

Prerequisite: enrollment in a Tech-sanctioned study program in a Spanish-speaking country, completion of SPAN 2024 or equivalent, and permission of the Study Abroad supervisor. Study of the contemporary language and culture in a Spanish speaking country. May substitute for SPAN 3003 or SPAN 3013, depending on the student's proficiency level.

SPAN (FR, GER) 3163 Community Internship Experience

Prerequisite: completion of SPAN 2024 or equivalent. Study of contemporary language and culture in a Spanish-speaking community or setting. May be taken instead of SPAN 3143 to meet degree requirements.

SPAN 3213 Advanced Grammar and Usage

Prerequisites: SPAN 3013 or permission of instructor. The course is designed to build writing competence and strengthen grammatical competence. Grammar will be studied within the context of writing assignments. The course will deepen the knowledge of the language through the usage of applied linguistics, syntax, grammar, and semantics.

SPAN 3223 Short Story

Prerequisite: SPAN 3013 or permission of instructor. An introductory study of French, German, or Spanish American short stories. Students will analyze short texts to strengthen their reading and text interpretation skills and to increase their knowledge of vocabulary.

SPAN(FR, GER) 4003 Oral Communication

Prerequisite: SPAN 3013 or permission of instructor. This course is designed to strengthen students' oral communication skills by enabling them to converse easily with native speakers on everyday topics in preparation for the oral proficiency interview (OPI). \$134 interview fee.

SPAN 4023 Introduction to Spanish Linguistics

Prerequisites: SPAN 3013, 3023, 3213. The purpose of this course is to provide students with the fundamental knowledge of Spanish linguistics as the basis for future application of linguistic principles. This course explores Spanish phonetics, phonology, morphology, syntax and semantics.

SPAN 4213 Spanish Literature

Prerequisite: SPAN 3223 or permission of instructor. A survey of the literature of Spain with readings from representative works.

SPAN 4223 Spanish-American Literature

Prerequisite: SPAN 3223 or permission of instructor. A survey of Spanish-American literature with readings from representative works.

SPAN 4283 Seminar in Spanish

Prerequisite: SPAN 3013 or equivalent. Course content will vary. May be repeated for credit if course content varies.

SPAN 4384 Medical Interpretation Theory

Prerequisite: Must be taken in the senior year prior to SPAN 4809, Practicum II. Fall. This course prepares students with the necessary theory and medical terminology to function effectively as interpreters in a variety of medical settings. \$134 OPI fee.

SPAN (FR, GER) 4701 Foreign Language Pedagogy

Prerequisites: Admission to student teaching phase of the teacher education program and concurrent enrollment in SEED 4909. Intensive on-campus exploration of the principles of curriculum construction, applied methods, professional collaboration, and evaluation as related to teaching French, German, or Spanish, followed by professional internship application of these principles under the supervision of a qualified departmental instructor.

SPAN(FR, GER,) 4703 Foreign Language Teaching Methods

Prerequisite: SPAN 3013 and 3113 or equivalent; admission to Stage II of the Secondary Education sequence or equivalent. Survey of instructional methods and discussions and demonstration of practical techniques for the teaching of a foreign language.

SPAN 4801 Practicum in Medical Interpretation I
Fall. Prerequisite: SPAN 4801 must be taken in the senior year prior to SPAN 4809, Practicum II. This course provides students with initial experiences into the issues, challenges, and rewards of the Medical Interpretation profession by the first-hand observation and analysis of healthcare encounters between physicians and families with limited English proficiency. Written reflections based on conversations with patients, physicians, nurses and other staff are also expected. Field experience, one credit hour.

SPAN 4803 Latin American Film Theory
Prerequisites: Completion of Spanish-American Civilization and Culture or equivalent. An introduction to Latin American film theory and major films. The course traces the development of film and film theories in Latin America covering from its earliest initiatives in the 1950s in Peru, Venezuela, and Uruguay to the present.

SPAN 4809 Practicum in Medical Interpretation II
Prerequisite: SPAN 4801 and 4384. Spring. This course aims at creating a synthesis of theory and practice in Medical Interpretation by providing students with in-depth, practical experiences into the issues, challenges, and rewards of their profession. Students will provide interpretation services between physicians and/or staff and families with limited English proficiency during healthcare encounters at an approved medical facility. Field experience, (6-8 contact hours per day), nine credit hours.

SPAN(FR, GER, JPN) 4901-3 Foreign Language Internship
Prerequisites: Advanced foreign language proficiency; permission of the instructor and the department head. The Foreign Language Internship is intended primarily for majors in foreign languages or international studies. It is designed to provide outstanding students the opportunity to perfect their language proficiency and to acquire specific training and skills overseas. The overseas sponsor and the foreign language instructor of record will supervise the intern. Performance evaluations and a research paper will be required.

SPAN 4951-4 Undergraduate Research in Spanish
On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

SPAN 4991-4 Special Problems in Spanish
Prerequisite: SPAN 2024 and consent of the instructor and the department head. Designed to provide advanced students with a course of study in an area not covered by departmental course offerings.

Speech

SPH 1003 Introduction to Speech - Communication

The purpose of this course is to develop within each individual an understanding of the utilitarian and aesthetic dimensions of speech-communication and to increase ability to function effectively with others in a variety of communication situations.

SPH 1111, 1121 Individual Events Practicum
Preparation and performance of a variety of public speaking events.

SPH 2003 Public Speaking
Each semester. Prerequisites: ENGL 1013 or equivalent. Fundamentals of composition, delivery, and logical reasoning. Effective utilization of basic visual aids will be included.

SPH 2013 Voice and Diction
A course for majors and non-majors. A study of the effective use of the voice, improvement of diction, development of vocabulary, use of the dialects, techniques of radio television announcing, recognition of basic speech disorders.

SPH 2111, 2121 Debate Practicum
Case research and participation in public debate.

SPH 2173 Business and Professional Speaking
An oral communication course for individuals in business, industry and the professions. Human communication theories and behavioral research are used as a framework for generating competencies in interviewing, briefings, conference leadership, and intergroup coordination.

SPH 3003 Interpersonal Communication
This course emphasizes interpersonal aspects of communication. Central topics are choice making, personal knowledge, creativity and interpersonal relationships. Increased self-awareness, understanding of interpersonal relationships and improvement of interpersonal skills are primary goals.

SPH 3013 Intercultural Communication
Prerequisite: SPH 1003, or SPH 2003, or consent of instructor. An examination of communication variables in different cultures and how to better understand and more effectively communicate across diverse cultures.

SPH(ENGL, FR, GER, SPAN) 3023 Introduction to Linguistics
Fall. Prerequisite: ENGL 1023 or equivalent. A study of basic concepts of language, comparative characteristics of different languages, and the principles of linguistic investigation.

SPH 3033 Interviewing Principles and Practices
Prerequisite: SPH 2003 or consent of instructor. A course for both majors and nonmajors that uses interviewing theory as a framework for developing skills in preparing for and practicing various types of interviews.

SPH 3043 Advanced Public Speaking
Prerequisite: SPH 2003 or consent of the instructor. Focuses on enhanced preparation and delivery of advanced forms of public address. Critical analysis of various forms of public discourse and effective utilization of multi-media speech aids will be stressed.

SPH 3063 Oral Interpretation
Theory and practice of intelligent and effective oral reading of prose and poetry.
SPH 3073 Group Communication
Examines theory and procedures used when communicating in groups and teams. Areas of inquiry include principles of group formation and development, working in teams, leadership, conflict management, and discussion methods involving decision-making and policy implementation.

SPH 3083 Communication and the Classroom Teacher
Prerequisites: Junior standing and completion of ENGL 1023 or equivalent. A study of the relationship between communication theory and instructional processes. Practical classroom experiences are stressed.

SPH 3111, 3121 Debate Practicum
Case preparation, brief writing, and participation in public debate.

SPH 3123 Argumentation
Prerequisites: SPH 1003, SPH 2003 or equivalent, or consent of instructor. Designed to develop research, critical thinking, and persuasive speaking ability. Includes lecture, discussion, research, study of debates, classroom debates, and presentations.

SPH 3223 Nonverbal Communication
This course provides an examination of the various methods in which nonverbal communication is utilized in the communication process. Included in the examination will be historical contexts, as well as the effects of physical appearance, touch, proxemics, eye contact, kinesics, and voice.

SPH 4003 Human Communication Theory

Prerequisite: 18 hours in Speech Communication, consent of instructor. This capstone theory class integrates learning about speech communication in various contexts. It is an in-depth study of contemporary and traditional perspectives of human communication, and synthesizes major concepts in human communication theory development.

SPH 4053 Speech Communication Seminar

Prerequisite: Junior standing. A course for both majors and non-majors who want to investigate the relationship between human communication and contemporary social, political, and economic issues.

SPH 4063 Organizational Communication

Prerequisites: SPH 1003 and SPH 3003 or SPH 3073 or equivalent, or consent of instructor. Theories of organizational communication are examined in terms of their practical application to various organizational contexts, including social, political, profit, and nonprofit organizations. Includes lecture, discussion, research, and group projects.

SPH 4073 Directing Forensics

Prerequisites: SPH 2003, SPH 3063, SPH 3123, and/or consent of the instructor. Practical study and training to lead to the planning of activities, directing competitive events, and administration of a forensic program on the high school level.

SPH 4111, 4121 Individual Events Practicum

Preparation and performance of a variety of interpretive events.

SPH 4123 Rhetorical Criticism

Prerequisite: SPH 1003, or SPH 2003, or consent of the instructor. This course will provide the principles of rhetorical theories as they have developed throughout history, and apply them to the critical analysis of various communication events.

SPH 4153 Persuasive Theory and Audience Analysis

Survey of classical and social science theories of persuasion. Particular emphasis is given to analysis of persuasive strategies, preparation of persuasive appeals, ethics of persuasion, and audience analysis. A consideration of social movements and persuasive campaigns is also included.

SPH 4173 Internship in Speech Communication

Prerequisites: Fifteen semester hours of Speech and SPH 4063, which can be taken concurrently; university grade point average of at least 2.50. A course that focuses on career goals of students through classroom discussions and places students in communication positions within public and private organizations.

SPH 4701 Special Methods in Speech

Prerequisites: Admission to student teaching phase of the teacher education program and concurrent enrollment in SEED 4909. Intensive on-campus exploration of the principles of curriculum construction, teaching methods, use of community resources, and evaluation as related to teaching speech.

SPH 4951-4 Undergraduate Research in Speech

On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

SPH 4991-4 Special Problems in Speech-Communication

A course for majors only. Students are accepted by invitation of the instructor.

Teaching English as a Second Language

TESL 4023 Tesol Second Language Acquisition

This course provides an introduction to the major theories of language acquisition and their application to the instruction of diverse groups of ESL students.

TESL 4703 Tesol Methods: Teaching English as a Second Language

This course introduces students to the methodology in teaching listening, speaking, reading and writing English, as well as core content, to diverse groups of ESL students.

TESL 4713 Tesol Assessment

This course is an introduction to ESL assessment practices, including the design and evaluation of classroom tests and other assessment tools.

TESL 4723 Tesol Teaching People of Other Cultures

This course provides an introduction to issues in language and culture, including sociolinguistic variations due to age, sex, social class and ethnicity.

University Orientation

TECH 1001 Orientation to the University

A course designed to provide information and enhance skills that will enable students to take responsibility for a successful transition to college. The course will expose students to college resources and requirements and promote the development of practical skills for college success.

Theatre

TH 2203 Play Analysis

A course designed for the theatre major. Contains techniques and vocabulary essential for doing a production-based analysis for the student actor, designer or director.

TH 2273 Introduction to Theatre

Prerequisite: ENGL 1013 or equivalent. TH 2273 may be used to fulfill the fine arts general education requirement. A study of theatre as an art form with particular attention to scenic, dramatic, literary and historic elements.

TH 2301 Introduction to Theatrical Dance

An introduction to the basic skills and discipline of stage movement and the steps and vocabulary of jazz, tap and ballet. This course counts as a PE activity credit in degree programs that are not intended for teacher licensure.

TH 2331 Advanced Theatrical Dance

Prerequisite: TH 2301. This course provides a continuation of the skills development for stage movement, and the steps, vocabulary, and discipline of ballet, tap, jazz, modern dance, and basic partnering. This course counts as a PE activity credit in degree programs that are not intended for teacher licensure.

TH 2513 Introduction to Theatrical Design and Production

An introduction to the field of technical theatre.

TH 2511, 2521 Practicum in Set Construction and Lighting

Credit will be given for forty hours of participation in these elements of stagecraft.

TH 2611, 2621 Practicum in Costume and Makeup

Credit will be given for forty hours of participation in these elements of stagecraft.

TH 2703 Acting Theories and Techniques

An introduction to standard acting techniques, including method acting.

TH 2711, 2721 Acting Practicum

Prerequisite: Consent of instructor. Credit will be given for a large part in a major production or for a small part preceded by a series of smaller parts in previous productions.

TH 2713 Intermediate Acting

Prerequisite: TH 2703 or equivalent. Emphasis on character development, character interaction, and scene work, with special attention to comedy.

TH 3513 Stagecraft Techniques

An introductory course for both majors and non-majors who want to learn the technical aspects of dramatic productions. A study of construction fundamentals and skills involved in scenic art. This course also introduces the student to the production process, theatre job descriptions, professional hierarchy, and technical specialist collaboration. This course requires a weekly lab in addition to the class for supervised practice of class skills.

TH 3523 Principles of Theatrical Lighting

Prerequisite: TH 3513, or consent of instructor. An introduction to lighting design, including the history of theatrical lighting, electrical theory and practice, lighting control systems, color theory and creative process. This course requires a weekly lab in addition to the class for supervised practice of class skills and familiarization with the production process.

TH 3703 Advanced Acting: Styles

Prerequisite: TH 2713 or equivalent. The analysis and performance of scenes from plays from various historical periods, with attention to vocal and kinesthetic qualities appropriate to different styles.

TH 3711, 3721 Practicum in Stage Management

Prerequisite: Consent of Instructor. Student will be given credit for stage-managing a full-length production or a slate of one-acts. Each number may be taken for credit one time with a maximum of 7 practicum credits counted toward the major.

TH 3731, 3741 Practicum in Acting

Prerequisite: Consent of Instructor. Credit will be given for a large part in a major production or for a small part preceded by a series of smaller parts in previous productions.

TH 3803 Directing Theories and Techniques

An introduction to standard directing techniques.

TH 3811, 3821 Directing Practicum

Prerequisite: Consent of instructor. Credit will be given for directing a one-act play.

TH 3833 Advanced Directing

Prerequisites: TH 3811, and consent of instructor. Credit will be given for directing a full-length play.

TH 4243 Senior Project in Theatre History

Research project approved by the department to facilitate graduate school application.

TH(ENGL) 4263 Theatre History I: Antiquity to 1564

A historical survey of the development of drama and theatre from classical Greece through the sixteenth century.

TH(ENGL) 4273 Theatre History II: 1564 to 1900

A historical survey of the development of drama and theatre from the seventeenth to the nineteenth centuries.

TH 4283 Children's Theatre: Techniques and Practicum

Prerequisites: Consent of instructor. The philosophy of teaching acting to children, in theory and in practice. The course is designed for theatre majors, teachers, and others interested in child development. The semester equivalent of two hours of class lecture is combined with the semester equivalent of two hours of supervised laboratory experience in a children's theatre setting. May not be taken for credit after completion of SPH 5283 or equivalent.

TH 4313 Theatre History III: 1900 to 1960

The development of theatre during the first part of the twentieth century, including realism, expressionism, symbolism, epic theatre, and theatre of the absurd. May not be repeated for credit.

TH 4323 Theatre History IV: 1960 to the Present

The development of theatre during the latter part of the twentieth century, including neo-realism, post-modernism, feminism, political theatre, and collective creation. May not be repeated for credit as TH 5323.

TH 4503 Scene Design

Prerequisites: TH 3513, or permission of instructor. A study of the elements of design for the stage, from conception to finished production models, focusing on line, form, mass, and color. May not be repeated for credit as TH 5503 or equivalent.

TH 4506 High School Play Production

This course provides essential information about high school play production. The course will provide basic information in lighting, sound design, set design and construction, makeup, costume design and construction, stage management, directing, and improvisational techniques. May not be repeated for credit as TH 5506 or equivalent.

TH 4511, 4521 Practicum in Set Construction and Lighting

Prerequisite: Consent of Instructor. Student will be given credit for 40 hours of set construction participation.

TH 4513 Drafting for the Stage

Prerequisite: TH 3513 or permission of the Instructor. Introduction to the United States Institute for Technical Theatre drafting techniques and language. Production of floor plans, elevations, construction drawings and perspectives for theatrical construction. This course requires a weekly lab in addition to the class skills and familiarization with the production process.

TH 4523 Advanced Stagecraft

Prerequisite: TH 3513, TH 4513 or permission of instructor. A course for technical theatre emphasis majors that trains the student for managing a theatre shop. Teaches advanced construction techniques, welding, pyrotechnics, and people managing skills. This course requires a weekly lab in addition to the class for supervised practice of class skills and production process.

TH 4543 Senior Project in Design

Portfolio creation project approved by the department to facilitate graduate school application process or professional placement.

TH 4611, 4621 Practicum in Costume and Makeup

Prerequisite: Consent of Instructor. Student will be given credit for 40 hours in costume or makeup participation. Each course number may only be taken for credit 1 time with a maximum of 7 practicum hours counting toward the major.

TH 4613 Introduction to Costuming

An examination of the history, theory and practice of costume design. It makes use of lecture, practical experience and personal exploration through a variety of artistic media to help each student understand both the art and technology of costume design.

TH 4711, 4721 Practicum in Stage Management

Prerequisite: Consent of Instructor. Student will be given credit for stage-managing a full-length production or a slate of one-acts. Each number may be taken for credit one time with a maximum of 7 practicum credits counted toward the major.

TH 4731, 4741 Practicum in Acting

Prerequisite: Consent of Instructor. Credit will be given for a large part in a major production or for a small part preceded by a series of smaller parts in previous productions.

TH 4821, 4831 Practicum in Directing

Prerequisite: Consent of Instructor. Student will be given credit for the assistance in the directing of a full-length production or for the independent directing of a one-act.

TH 4843 Senior Project in Theatrical Performance
Portfolio creation project approved by the department to facilitate graduate school application or professional placement.

TH 4951-4 Undergraduate Research in Theatre
On demand. Requires departmental approval. Advanced students carry out independent research activity relating to a significant problem in a major field of study. Supervised by faculty member. Formal report and presentation required. One to four credits depending on problem selected and effort made.

TH 4983 Theatre Seminar
Prerequisites: Twelve credits in theatre and junior standing. A directed seminar dealing with a selected topic in theatre studies. May be repeated for credit for different topics. May not be repeated for credit as TH 5983 unless topic is different.

TH 4991-4 Special Problems in Theatre
For majors only. Students are accepted by invitation of the instructor.

Vocational Business Education

(Additional prerequisites for 3000- and 4000-level courses are listed in the College of Business section of this catalog.)

VOBE 4023-5023 Methods of Teaching Vocational Business

A methods course designed to prepare the beginning business educator for effective teaching in the contemporary vocational business education classroom. Teaching methodologies for the business education occupational clusters are presented and practiced.

VOBE 4053-5053 Technology Methods for Business Education

A course in technology education focusing on methods and hands-on activities utilized in secondary Business Education programs with emphasis on hardware, software, and program development. May not be repeated for credit as VOB 5053 or equivalent.

VOBE 4063-5063 Educators-in-Industry

A course devoted to career awareness in relation to the modern workplace. It is conducted in cooperation with local businesses and industries. The course involves research, on-site instruction, and work experience.

VOBE 4093-5093 Directed Vocational Work Experience

Prerequisite: Consent of instructor and advisor's recommendation. A course for business teachers or business education students who desire or need practical, on-the-job experience in areas related to the vocational business education curriculum; designed to provide practical experience in a structured, supervised setting.

VOBE(SEED) 4556 Classroom Application of Educational Psychology

Prerequisite: Admission to Stage II of the teacher education program. Application of educational psychology principles to middle level and secondary classroom practices. The course may not be taken after completion of EDFD 3042, EDFD 3045.

VOBE 4701 Special Methods in Vocational Business

Prerequisites: Admission to student teaching phase of the teacher education program and concurrent enrollment in SEED 4909. Intensive on-campus exploration of the principles of curriculum construction, teaching methods, use of community resources, and evaluation as related to teaching vocational business.

Wellness Science Activities

WS 1002 Physical Wellness and Fitness

The course provides students with the opportunity to assess their current lifestyle and consider the possible consequences for the present and the future. The class provides a mechanism for change by actively involving the student in self-analysis and a trial exercise program. Two scheduled class meetings and two hours arranged. This course will satisfy two credit hours of PE activity. \$10 laboratory fee.

WS 1031 Food, Exercise, and Body Composition

The course provides the student with the opportunity to assess their current lifestyle pertaining to the nutrients consumed in the diet and the amount and type of aerobic exercise participation. Special emphasis is placed on developing an internal locus of control by actively involving the student in self-analysis activities, developing an understanding of nutrient intake and the culminating effects on personal health, and participation in an appropriate aerobic exercise program. \$10 laboratory fee.

WS 1061 Muscle Fitness for Women

Structured to provide for the development of insights and practices associated with resistive activity as the student accomplishes an individually predicted level of muscle fitness. \$10 laboratory fee.

WS 1081 Muscle Fitness for Men

Structured to provide for the development of insights and practices associated with resistive activity as the student accomplishes an individually predicted level of muscle fitness. \$10 laboratory fee.

WS 1091 Fitness Walking/Jogging

The course provides the student with the opportunity to assess his or her personal physical fitness level with trained personnel. Special emphasis is placed on improving the physical fitness level of the student through participation in appropriately designed walking or jogging activity. Students who enroll in the class will submit themselves to the physical fitness protocol administered by the HPE and Wellness faculty members and upper-level majors. \$10 laboratory fee.

Academic Courses

(Additional prerequisites for WS Academic courses are listed in the Wellness and Fitness Programs Option section of this catalog.)

WS 2003 Field-Based Experience in Wellness

The class provides the prospective Wellness/Fitness professional with an opportunity to observe on-site a community-based wellness/fitness agency or business. A combination of classroom and on-site experiences will direct the student's focus to various aspects of commercial or institutional programs and services aimed at lifestyle enhancement. Specific lecture-class meetings and at least 30 hours of observation in an agency or business setting will be required.

WS 2031 Directing Food, Exercise, and Body Composition Programs

The course provides the student with the opportunity to assess their current lifestyle pertaining to the nutrients consumed in the diet and the amount and type of aerobic exercise participation. Special emphasis is placed on the methodology of teaching about the development of an internal locus of control by actively involving the student in self-analysis activities, developing an understanding of nutrient intake and the culminating effects on personal health, and participation in an appropriate aerobic exercise program. The course is structured to provide for the development of knowledge and practices of directing food, exercise, and body composition programs employed to accomplish an individually predicted level of physical fitness. \$10 laboratory fee.

WS 2043 Applied Fitness Assessment and Development

Prerequisites: PE 2653 and PE 3663. A survey and application of the knowledge and experiences in assessing and developing all components of physical fitness.

WS 2081 Directing Muscle Fitness Programs

Structured to provide for the development of knowledge and practices of directing resistance training activities used to accomplish an individually predicted level of muscle fitness. \$10 laboratory fee.

WS 2091 Directing Fitness Walking/Jogging Programs

The course provides the Wellness/Fitness major student with the opportunity to assess the physical fitness level of individuals under the supervision of trained personnel. The course is structured to provide for the development of knowledge and practices of directing fitness walking and jogging activities employed to accomplish an individually predicted level of aerobic fitness. Students who enroll in the class will submit themselves to the physical fitness protocol as well as help administer various evaluation measures to members of a corresponding wellness activity class. \$10 laboratory fee.

WS 3003 Exercise Prescription

Prerequisite: WS 2043 or consent of department head. A course designed to expose the student to the aspects of health-related and skill-related physical fitness, with particular attention given to prescribing exercise programs. Attention will be given to choosing appropriate fitness assessments, along with development of appropriate goals for clientele.

WS 3023 Exercise Behavior and Adherence

The course provides the student with the opportunity to learn about the components which impact exercise behaviors and adherence to physical exercise programs. Emphasis is placed on the identification of components which directly impact on personal motivation for the development of appropriate exercise behaviors, and the development of incentives which assist in adherence to health enhancement programs.

WS 4003 Advanced Professional Seminar

Prerequisite: Completion of all 1000- and 2000-level Wellness Science required classes. This course provides the advanced wellness/fitness major with a setting in which research and contemporary topics critical to the profession may be explored. The student will perform literature research, data gathering, and professional writing/presentation throughout the class.

WS 4012 Wellness and Fitness Program Management Internship

(Twelve-hour course.) Prerequisites: Admission to internship program and 2.00 grade point average. Intensive on-campus classroom exploration of professional principles and procedures used in the areas of health and fitness promotion for the first three weeks of the semester. The remaining portion of the semester is spent in a supervised full-time internship at a designated site. Fee \$25.

WS 4063 Wellness and Fitness Programming

The course is designed to provide the student with the opportunity to discover various methods employed in planning and implementing wellness and fitness programs in multiple settings. Special emphasis is placed on the administration of client-specific health enhancement programs designed for persons in corporate settings, fitness center clientele, and patients in physical rehabilitation.

WS 4991-3 Special Problems in Wellness Science

Independent work on approved wellness science topics under the individual guidance of a faculty member. Admission requires the consent of the department head.