

# *Course Listings*

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**COURSE LISTINGS****COURSES ARE LISTED ALPHABETICALLY  
BY NAME OF DISCIPLINE**

*(Course numbers which have been changed since the 2010-2011 BULLETIN are listed in parenthesis.)*

**Accounting (AC)**  
**Administrative Services (AD)**  
**Aerospace Studies (AS)**  
**Agriculture (AG)**  
**Agronomy (AO)**  
**Animal Science (AY)**  
**Anthropology (AI, AN)**  
**Art (AR)**  
**Art History (AH)**  
**Biological Sciences (BS)**  
**Biology (BI)**  
**Biology Gulf Coast Research Laboratory**  
**Biotechnology (BT)**  
**Botany (BO)**  
**Business Administration (BA)**  
**Business Law (BL)**  
**Career Linkages (CL)**  
**Chemistry (CH)**  
**Child & Family (CF)**  
**Chinese (CN)**  
**Clothing & Textiles (CT)**  
**Coaching Education (CG)**  
**Commercial Photography (PG)**  
**Communication Disorders (CD)**  
**Communication Studies (SC)**  
**Computer and Multimedia Graphics (GM)**  
**Computer Science (CS)**  
**Construction Management (CM)**  
**Criminal Justice (CJ, CO, LE)**  
**Cybersecurity (CY)**  
**Dance (DA)**  
**Early Childhood Education (CE)**  
**Economics (EC)**  
**Education (ED)**  
**Educational Foundations (EF)**  
**Electronics Technology (ET)**  
**Elementary Education (EL)**  
**Engineering Physics (EP)**  
**English (EN)**  
**Environmental Science (EV)**  
**Exceptional Child Education (EX)**  
**Facilities Management (FM)**  
**Family Economics & Management (FE)**  
**Finance (FI)**  
**Food & Nutrition (FN)**  
**Foreign Language (FL)**  
**Forensic Science (FS)**  
**French (FR)**  
**Geography (GG)**  
**Geosciences (GO)**  
**German (GN)**  
**Health Management (HL)**  
**Historic Preservation (HP)**  
**History, European (EH)**  
**History, General (GH)**  
**History, United States (US)**  
**History, World (WH)**  
**Horticulture (HO)**  
**Human Environmental Studies (HE)**  
**Industrial Education (IE)**  
**Industrial Management (IM)**  
**Information Systems (IS)**  
**Interior Design (DS)**  
**International Education (IN)**  
**Japanese (JN)**  
**Literature (LI)**  
**Management (MG)**  
**Management Information Systems (MI)**  
**Manufacturing Engineering Technology (MN)**  
**Marketing (MK)**  
**Mass Communication (MC)**  
**Mathematics (MA)**  
**Medical Technology (MT)**  
**Music (ME, MH, MM, MP, MU)**  
**Nursing Clinical (NC)**  
**Nursing (NS)**  
**Philosophy (PL)**  
**Physical Activity (AT)**  
**Physical Education (PE)**  
**Physics (PH)**  
**Political Science (PI, PS)**  
**Psychology (PY)**  
**Quantitative Methods (QM)**  
**Recreation (RC)**  
**Religion (RS)**  
**Secondary Education (SE)**  
**Social Rehabilitation (SR)**  
**Social Studies Education (SS)**  
**Social Work (HS, SW)**  
**Sociology (SI, SO)**  
**Spanish (SN)**  
**Sport Management (SM)**  
**Telecommunications and Computer  
Networking (TN)**  
**TESOL (TL)**  
**Theatre (TH)**  
**University Studies (IU, UI)**  
**Women's Studies (WS)**  
**Writing Proficiency (WP)**  
**Zoology (ZO)**

## **ACCOUNTING (AC)**

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**AC 221. Principles of Accounting I.** A study of principles and procedures of accounting. The reporting of assets, liabilities, owner's equity, revenues, and expenses are detailed. Prerequisites: AD 101 and MA 134 with minimum grade of 'C'; sophomore standing. (3)

**AC 222. Principles of Accounting II.** Examines principles and procedures of accounting. Equity, cash flows, cost-volume-profit and performance analysis, budgeting and product costing are detailed. Prerequisite: AC 221 with minimum grade of 'C.' (3)

**AC 321. Financial Accounting and Reporting I.** Theory and procedures concerning financial accounting and reporting. Prerequisite: AC 222 with minimum grade of 'B'; or consent of department chairperson. (3)

**AC 330. Accounting Information Systems.** Analysis of accounting information systems and business processes. Emphasis on documentation, controls, transaction cycles, and spreadsheet/general ledger applications. Prerequisite: AC 222 with minimum grade of 'C.' (3)

**AC 331. Cost Accounting and Analysis.** General principles of cost management systems; job order, process and standard costing; budgeting; responsibility accounting; and performance evaluation. Prerequisite: AC 222 with minimum grade of 'C.' (3)

**AC 332. Financial Accounting and Reporting II.** Theory and procedures concerning revenue recognition, investments, stockholders' equity, tax allocation, EPS, pensions, leases, accounting changes, and statement of cash flows. Prerequisite: AC 321 with minimum grade of 'C.' (3)

**AC 375. Financial Statement Analysis.** Examines the primary financial statements. Topics include user objectives, an overview of analytical tools and techniques, and qualitative vs. quantitative judgments. Prerequisite: FI 361 with minimum grade of 'C'. No credit given toward Accounting major. (3)

**AC 435. Taxation of Individuals.** An examination of federal income taxes with an emphasis on current tax laws applicable to individual income taxpayers. Prerequisite: AC 321 with minimum grade of 'C' or consent of instructor. (3)

**AC 437. Auditing and Assurance Services.** An introduction to financial auditing: authoritative pronouncements, legal liability, code of ethical conduct, audit procedures, and the types of audit opinions. Prerequisite: AC 321 with minimum grade of 'C'. (3)

**AC 491-493. Independent Study in Accounting.** Intensive study of special problems related to accounting. Prerequisites: A minimum of 75 hours completed;

a minimum cumulative grade point average of 2.50 overall or 2.75 in the department; a minimum of 10 semester hours in the department completed; consent of the department chairperson. (1-3)

**AC 534. Financial Accounting and Reporting III.** Business combinations, multinational enterprises, partnerships, consolidated statements and not-for-profit accounting. Prerequisite: AC 332 with minimum grade of 'C.' (3)

**AC 537. Advanced Auditing & Assurance Services.** An in depth examination of auditor legal liability, ethics, analytical procedures, statistical sampling, and audit research using electronic databases and the Internet. Prerequisite: AC 437 with minimum grade of 'C.' (3)

**AC 540. International Perspectives of Accounting.** An examination of accounting rules and practices of multinational enterprises throughout the world with special emphasis on harmonization, standardization, and disclosure requirements. Accounting majors must select this course to satisfy the Business Administration core requirement for an international course unless participating in an approved study abroad course or with permission of the department chairperson. Prerequisites: AC 222 with minimum grade of 'C.' (3)

**AC 545. Taxation of Business Entities.** An examination of federal tax laws with an emphasis on corporate taxpayers, partnerships, and fiduciaries. Prerequisite: AC 435 with minimum grade of 'C' or consent of instructor. (3)

**AC 548. Governmental and Not-for-Profit Accounting.** An introduction to the accounting principles and reporting practices of governments and not-for-profit organizations. Prerequisites: AC 222 with minimum grade of 'C'; Senior standing. (3)

**AC 573. Accounting Internship.** A supervised learning and work experience in professional accounting which enhances and supplements other accounting courses. An internship normally involves at least 150 supervised contact hours. Prerequisites: Junior standing with a 2.75 GPA; AC 321 with minimum grade of 'C.' (3)

## **ADMINISTRATIVE SYSTEMS MANAGEMENT (AD)**

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**AD 101. Introduction to Microcomputer Applications.** Fundamentals of an integrated business applications program in a networked Windows environment. Prerequisite: Keyboarding skills. (3)

**AD 210. Computing Fundamentals.** A study of key information technology concepts and the vital technical knowledge that can improve individuals' professional and personal lives. (3)

**AD 222. Microcomputer Applications for Business.** Using the microcomputer to perform business applications using word processing, web page, page design, spreadsheet, database, and presentation software. Prerequisite: AD 101 with a minimum grade of 'C.' (3)

**AD 331. Advanced Word Processing.** Refinement of word processing production, straight copy, and accuracy skills. Prerequisite: AD 101 with a minimum grade of 'C.' (3)

**AD 337. Administrative Systems Management Internship.** Training and work experience in an approved administrative services position, supervised by a departmental representative. Prerequisites: Cum GPA of 2.75; 12 hours of AD prefix courses. (3)

**AD 339. Network Support Systems.** A technical overview of local area network (LAN) systems including a theoretical framework and hands-on experience with computer networking technology. Prerequisite: AD 101 with minimum grade of 'C' or consent of the department. (3)

**AD 341. Information Systems Procedures.** Integration of specialized procedures to manage information support systems. Prerequisite: AD 101 with minimum grade of 'C.' (3)

**AD 353. Administrative Systems Management.** Organization and management of administrative information systems with emphasis on the skills, knowledge and role of the administrative office manager. (3)

**AD 491-493. Independent Study in Administrative Services.** Intensive study of special problems related to Business and Marketing Education and Administrative Systems Management. Prerequisites: A minimum of 75 hours completed; a minimum cumulative grade point average of 2.50 overall or 2.75 in the department; a minimum of 10 semester hours in the department completed; consent of the department chairperson. (1-3)

**AD 520. Cooperative Education Programs.** Changing philosophy and environment of cooperative education; overview of office and distributive education programs; planning, organizing and operating the cooperative programs. Prerequisites: SE 314; SE 370 or equivalent. (3)

**AD 526. Improvement of Curriculum and Instruction in Business and Marketing Education.** Study of the current trends, objectives, content, teaching

techniques, and evaluation techniques in business and marketing education. Special emphasis given to selecting and evaluating instructional materials. Prerequisites: SE 314; SE 370 or equivalent. (3)

**AD 527. Implementing Business and Marketing Education.** Study of components for successful implementation of business and marketing programs. Prerequisite: Appropriate Bachelor's degree. (3)

## **AEROSPACE STUDIES (AS)**

**AS 100. Foundation of the USAF I.** A survey course designed to introduce students to the U.S. Air Force and Air Force Reserve Officer Training Corps. Featured topics include missions and organization of the Air Force, military customs and courtesies, officership and professionalism, and officer careers. Co-requisite: AS 199. (1)

**AS 101. Foundation of the USAF II.** A continuation of topics taught in AS 100 plus topics in communication skills, military history, organizational/chain of command, and group leadership problems. Co-requisite: AS 199. (1)

**AS 199. Leadership Laboratory.** Training laboratory concurrent with AS 100 and AS 101. Teaches basic drill, ceremonies, and Air Force standards. (0)

**AS 200. Evolution of Air and Space Power I.** A survey course designed to examine general element and employment of air and space power through an historical perspective. Topics include the historical evolution of USAF air and space power from balloons through the Korean War, Air Force Core Values, and application of writing and briefing communication skills. Co-requisite: AS 299. (1)

**AS 201. Evolution of Air and Space Power II.** A continuation of topics taught in AS 200, including continued evolution of USAF air and space power from Vietnam to present day, USAF heritage and leaders, and continued application of writing and briefing communication skills. Co-requisite: AS 299. (1)

**AS 203. AFROTC Field Training.** Four to five-week summer officer training program on an Air Force base for selected students designated for AFROTC Professional Officer Course. (4)

**AS 299. Leadership Laboratory.** Training laboratory concurrent with AS 200 and AS 201. Emphasizes drill and ceremonies; provides preparation for Field Training and applied leadership experiences discussed in class. (0)

**AS 300. AF Leadership Studies I.** A study of leadership and quality management fundamentals,

professional knowledge, leadership ethics, and communication skills required of an Air Force officer. Co-requisite: AS 399. (3)

**AS 301. AF Leadership Studies II.** A continuation of the topics taught in AS 300 plus officership values, standards of conduct, principles of war and case studies as a means of demonstrating and exercising practical application of the concepts being studied. Co-requisite: AS 399. (3)

**AS 399. Leadership Laboratory.** Training laboratory concurrent with AS 300 and AS 301. Provides advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of the course. (0)

**AS 400. National Security Affairs.** A study of the national security process, regional studies, Air Force doctrine, civilian control of the military, military operations, joint operations, communication skills. Co-requisite: AS 499. (3)

**AS 401. Preparation for Active Duty.** A continuation of the topic taught in AS 400 plus topics in advanced leadership ethics, the military as a profession, officership, military justice and current issues affecting military professionalism. Co-requisite: AS 499. (3)

**AS 499. Leadership Laboratory.** Training laboratory concurrent with AS 400 and AS 401. Provides advanced leadership experience with an orientation for initial commissioned service. (0)

## **AGRICULTURE (AG)**

**AG 201. World Food and Society.** Food production and distribution for the advancement of societies in developed and developing countries. (University Studies course) (3)

**AG 208. Agribusiness Data Analysis.** Essentials of agricultural computation and modeling, coupled with analysis of field plot data and development of agriculture research communications. (3)

**AG 245. Agricultural Economics.** Economic principles and policies related to agriculture production and the food sector of the US economy. (3)

**AG 250. Agribusiness Management.** The role, organization, and basis for making economic and financial decisions within agribusiness. (3)

**AG 302. Agricultural Education Planning.** Emphasis on the history, design, function and evaluation of secondary agricultural education programs including FFA, curriculum, SAE programs, regulations. (3)

**AG 303. Agricultural Mechanization.** Methodologies in agricultural mechanization including safety, tool use, construction, blueprints, agricultural

systems and application of methodologies through experiential activity. Three hours lecture; one hour lab. (3)

**AG 333. Agricultural Law.** Study of statutes, cases and administrative regulations of agricultural concern. Application of laws significant to business and operations of producers. (3)

**AG 334. Agribusiness Finance.** Study of the acquisition and use of capital for farm and other agribusiness firms, including financial decision-making, risk management, and capital budgeting. Examination of the financial intermediaries serving agriculture. Prerequisite: AC 221. (3)

**AG 355. Agriculture Seminar.** Literature review, presentation, and discussion of topics related to current agricultural issues, recent advancements in agricultural research, and student-interest items related to professional development. Prerequisite: Junior standing. (1)

**AG 371. Topics in Agriculture.** Special topics in agriculture typically unavailable in the departmental curriculum such as agriculture instrumentation, clay mineralogy or forest soils. Prerequisite: consent of instructor. (1-3)

**AG 433. Agricultural and Food Policy.** The U.S. policy process related to food and agricultural issues. Analysis of domestic farm, food, resource policy, international trade and market development issues. Prerequisite: AG 245 or EC 215. (3)

**AG 440. Precision Agriculture.** Designed to familiarize students with site-specific technology, including use of GPS and GIS, through a hands-on experience. Two lectures; two-hour lab. Prerequisites: AO 120/020 or consent of instructor. (3)

**AG 447. Marketing Agricultural Products.** Emphasis is placed on alternatives in marketing products and problems that may be encountered. Managing risk using the futures market is also emphasized. Prerequisite: AG 245 or EC 215. (3)

**AG 461. Independent Study in Agriculture.** Directed individual study of special interest areas in agriculture. Prerequisite: 75 hours completed; 2.50 cumulative GPA or 2.75 in major; minimum of 10 hours in discipline to be studied; consent of department chairperson. May be repeated for a maximum of 6 hours. Prerequisite: consent of instructor. (1-3)

**AG 465. Agriculture Internship.** Cooperative program between the department and an organization (employer) that furnishes facilities and instruction where students acquire additional knowledge and skills. May be repeated for a maximum of 12 hours credit. Prerequisite: Consent of internship advisor. (3-6)

**AG 469. Undergraduate Research.** Supervised individual research on a problem of interest to the student.

A report is required. May be repeated for a maximum of 6 hours. Prerequisite: consent of instructor. (3)

**AG 470. Agribusiness Sales.** The sales sequence and development of skills needed to build professional relationships. (3)

**AG 551. Water Management.** Soil, water and plant relationships. Design and layout of farm drainage and irrigation systems. Two lectures; two-hour lab. Prerequisite: HO 110 or AO 120 or consent of instructor. (3)

## **AGRONOMY (AO)**

**AO 120. Plant Science.** Scientific principles and practices associated with the production and cultures of agronomic and horticultural plants. (3)

**AO 125. Plant Science Lab.** Scientific principles and practices associated with the production and culture of agronomic and horticultural plants. (1)

**AO 215/015. Soils.** Origin, classification, and physical, chemical and biological properties related to farm practices. Two lectures (AO 215) must be taken concurrently with two-hour lab (AO 015). Prerequisite: CH 181/001/081 or CH 185/005/085. (3)

**AO 260/060. Integrated Pest Management.** Integration of pest-control methods to improve control, decrease costs and minimize environmental impact. Prerequisite: AO 120/020 or BI 153. (3)

**AO 301. Forages.** Forage crops for pasture, hay and silage with reference to growth and development, production, nutritional quality, and grazing systems. Two lectures; two-hour lab. (3)

**AO 321. Cotton and Rice Culture.** The production and marketing principles governing the growth and development of cotton and rice crops. Prerequisite: AO 120/020 or BI 153. (3)

**AO 322. Weed Science.** Identification, dissemination, ecology and control of weeds. Techniques of herbicide application, types of herbicides and herbicidal action. Two lectures; two-hour lab. Prerequisites: AO 120/020; CH 181/001/081 or CH 185/005/085. (3)

**AO 323. Plant Pathology.** Microbiological principles and cultural practices associated with diseases in plant production. Prerequisite: AO 120/020 or BI 153. (3)

**AO 327. Sustainable Agriculture.** Designed to introduce students to ecological principles and analysis of sustainability of agricultural systems. Prerequisite: AO 120/020. (3)

**AO 401. Agriculture and Natural Resource Management.** Application of fundamental agronomic principles to maintain and use natural resources for

production, management, recreation, rural development and posterity. Prerequisites: AO 120/020 or BI 153, BI 151 or BS 105. (3)

**AO 420. Crop Physiology.** Study of the physiological processes underlying crop growth and production. Three lectures. Prerequisites: AO 120/020; AO 215. (3)

**AO 427. Soil Fertility and Plant Nutrition.** Fundamentals and concepts of soil fertility and its evaluation related to soil management, plant nutrition and maintenance. Two lectures; two-hour lab. Prerequisites: AO 215/015; CH 181/001/081 or CH 185/005/085. (3)

**AO 435. (Cross-listed as ZO 465) Entomology.** Insect biology, diversity, structure, physiology, behavior, control and selected topics in entomology. Two hours lecture; two-hour lab. Prerequisites: BI 154 or AO 120 and AY 101 and HO 130. (3)

**AO 444. Principles of Plant Breeding.** Principles of plant reproduction and inheritance and their application to development of improved genotypes. Variety evaluation and distribution procedures. Prerequisite: AO 120/020.

**AO 480. Crop Production.** Production practices for growing major crops, including planting, pest management, water management, harvesting, marketing, and processing. Prerequisites: AO 260; AO 323; AO 420. (3)

**AO 555 (Cross-listed as GO 555). Soil Classification and Resource Management.** Classification of soils in terms of their physical, chemical and mineralogical composition. Interpretation of soils in terms of proper land use, with special attention to soil erosion. Two lectures; two-hour lab. Prerequisites: AO 215/015 or GO 110; CH 181/001/081 or CH 185/005/085. (3)

## **ANIMAL SCIENCE (AY)**

**AY 101. Animal Science.** Development and fundamentals of the livestock industry, including breeds, physiology, nutrition, and products of sheep, cattle, horses, poultry and swine. (3)

**AY 105. Animal Science Experiences.** Development and fundamentals of the livestock and farm management, including experiences in basic animal handling and farm infrastructures. (2)

**AY 200. Companion Animals.** Examination of the scientific principles of nutrition, reproduction, behavior and business practices of the companion animal industry. (3)

**AY 205. Horse Science.** Feeding and management practices in horse care and production. Two lectures; two-hour lab. (3)

**AY 300. Domestic Animal Anatomy and Physiology.** Detailed investigations into the anatomy and physiology of domestic animals, including the skeletal, muscular, cardiovascular, respiratory, digestive, and nervous systems. Two lectures; two-hour lab. Prerequisite: AY 101 or AY 102. (3)

**AY 304. Principles of Animal Nutrition.** General introduction and history of nutrition for animals and man; general functions, deficiencies and toxicities of the six classes of nutrients (water, protein, carbohydrates, lipids, minerals and vitamins); general digestion, absorption, utilization and excretion of these classes of nutrients in cattle, sheep, swine and horses. Two lectures; two-hour lab. Prerequisites: AY 101/001. (3)

**AY 305. Advanced Horse Science.** Advanced management practices in horse care, feeding, and reproduction. Two lectures; two-hour lab. (3)

**AY 311. Animal Breeding.** The application and principles of animal genetics and reproduction for the improvement of farm animals. Two lectures; two-hour lab. Prerequisite: AY 101/001. (3)

**AY 360. Animal Immunization and Disease.** Study of farm animals' infectious and non-infectious diseases, their parasites and parasitic diseases, with overview of immunology and pharmacology. (3)

**AY 405. Beef Production.** Breeding, feeding, and management of purebred and commercial cattle. Two lectures; two-hour lab. Prerequisite: AY 304. (3)

## **ANTHROPOLOGY (AI, AN)**

**AI 491-493. (AI 496) Anthropology Internship.** Internship with a public or private agency providing first hand experience in the application of anthropological skills. May receive up to six credit hours in any combination. Prerequisites: Junior standing; declared Anthropology major; minimum 3.0 cumulative GPA; minimum 3.5 GPA in Anthropology courses. (1-3)

**AN 100. Foundations of Human Behavior: Sex and Aggression.** Examines biological and cultural foundations of sex and aggression, with an emphasis on critical examination of the popular media. (University Studies course) (3)

**AN 101. Observing Other Cultures.** Trains students in basic scientific methods of observing cultural and social behavior. Provides foundation for anthropological study of culture. (University Studies course) (3)

**AN 180. Introductory Anthropology: Physical Anthropology and Archaeology.** Human physical and cultural evolution, biological evidence of fossil humans, origins of social life, origins of stone tools, agriculture and cities. (3)

**AN 181. Introduction to Cultural Anthropology.** Worldwide survey of family and marriage, arts, languages and religions. Why cultures and their people differ. (3)

**AN 250. World Archaeology.** Humankind before recorded history, cultures from stone age to civilization in China, India, Africa, Egypt, Mesopotamia, Mexico and Peru. Prerequisite: Consent of instructor. (3)

**AN 311-313. Archaeological Fieldwork.** On-location study of different excavation methods and techniques for recovery of archaeological artifacts. Students will practice the use of field and laboratory equipment. Prerequisite: AN 180 or consent of instructor. (1-3)

**AN 317. Ethnographic Field Methods.** An overview of the qualitative methods of studying culture used by social scientists. Students practice using these methods in real-life situations. Prerequisite: AN 101. (3)

**AN 319. Archaeology Laboratory.** Students will learn basic laboratory techniques and procedures used in the identification, preservation, and analysis of various types of prehistoric artifacts. Prerequisite: AN 180 or consent of instructor. (3)

**AN 321. Midwestern Archaeology.** Traces the prehistory of Missouri from earliest mankind in the Ice Age to the arrival of the first Europeans. Examines types and varieties of artifacts that can be found in Missouri and what they explain about prehistoric life. (3)

**AN 331-333. Applied Anthropology.** On-location application of the anthropological perspective, including ethnographic techniques of systematic participant observation, ethnographic interviewing, unobtrusive and naturalistic observations, language learning and analysis. Data analysis and write-up and applied (public) uses of ethnographic research. Prerequisite: AN 101 or AN 181 or consent of instructor. (1-3)

**AN 341. Introduction to Linguistic Anthropology.** Explores the origin and development of human language, and the relationship of language to other aspects of culture. Prerequisite: AN 181 or consent of instructor. (3)

**AN 355. Special Topics in Anthropology.** Explores recent scientific developments and topics of current popular interest or of a specialized nature in prehistory, public archaeology, archaeological methods and techniques. (3)

**AN 360. Meso-American Civilizations.** Study of Aztec, Maya and other important Meso-American civilizations and cultures before and after European contact. Prerequisite: AN 180 or AN 181 or consent of instructor. (3)

**AN 375. Anthropology of Religion.** Examines through an anthropological perspective the development and function of the institution of religion in both complex and simple modern-day societies. Prerequisites: AN 181 or consent of instructor. (3)

**AN 380. Human Evolution and Adaptation.** Biological origins of humans, anatomy of earlier humans, relationship between apes and humans, racial variation, genetic and physical adaptation. Prerequisite: AN 180 or consent of instructor. (3)

**AN 381. North American Archaeology.** Origin and development of Indian cultures before recorded history, earliest migration into new world, European contact. (3)

**AN 382. Archaeology: Method and Theory.** A general introduction to the theories, methods, and practice of archaeology. Prerequisite: Junior standing or consent of instructor. (3)

**AN 387-389. Independent Study in Anthropology.** Directed individual study of special interest areas. (1-3)

**AN 390. European Prehistory.** Ancient Europe, development of pagan cultures, roots of classical civilizations, influences of near East on prehistoric Europe. (3)

**AN 400. Practicum in Teaching Anthropology.** Applied and theoretical study of the teaching of anthropology in which students are paired with and supervised by faculty members. Senior standing or consent of instructor. (3)

**AN 493. Anthropology Theory Seminar: Cultural Anthropology and Linguistics.** Traces the development of anthropological theory and examines the effect of anthropological theories on other academic fields. Prerequisites: AN 180; AN 181. (3)

**AN 550. Historic Archaeology.** Intensive examination of major issues in the development of historical archaeology, theoretical and methodological issues, and major areas of research. Prerequisites: Junior standing or consent of instructor. (3)

**AN 551. Historic Archaeology Field School.** Historic archeological survey and excavation; intensive instruction in recovery and documentation of cultural remains; public interpretation of an excavation; practice in archival research. Prerequisite: Junior standing or consent of instructor. (6)

**See University Studies (UI) listings for description of:**

**UI 339. North American Indians (3)**

## **ART (AR)**

**AR 001. Freshman Core Review.** Art majors pursuing the BA degree, the BFA degree, or the BS in Education degree must pass the foundation review after completion of the 15 credit hour foundation program (AR 100, AR 104, AR 106, AR 202, AR 201) and before taking upper level or advanced art courses. Foundation review should be completed before the end of the sophomore year. See advisor for details. No credit.

**AR 100. Drawing I.** Introduction to drawing skills/concepts through drawing from direct observation using basic drawing media. One of five foundations courses required for all art majors. (3)

**AR 104. Design Foundations.** Theory and application of the elements and principles of design with emphasis on black and white exercises. One of five foundations courses required for all art majors. (3)

**AR 106. Three-D Foundations.** Introduction to three-dimensional design elements and principles using related materials to explore form, space and concept. One of five foundations courses required for all art majors. (3)

**AR 108. Drawing In Society.** A course combining studio drawing with the study of how art incorporates and communicates the experiences and values of society. No credit toward BFA major. (University Studies course) (3)

**AR 111. Ceramics: A Metaphor For Understanding Human Experience.** Ceramic design, form and functions will be explored to gain an enhanced understanding of human experience through the ages. No credit toward BFA major. (University Studies course) (3)

**AR 112. Perspectives in Art.** Understanding the role of contemporary and historical art in enriching the human experience. No credit toward BFA major. (University Studies course) (3)

**AR 201. Color Composition.** Beginning course of the study of the theory and application of color. One of five foundations courses required for all art majors. (3)

**AR 202. Drawing II: Human Figure.** Application of objective drawing skills to the greater challenge posed by the human figure. May be repeated for credit. One of five foundations courses required for all art majors. (3)



**AR 245. (Cross-listed as DA/MU/TH 245) Creating and Managing a Career in the Arts.**

Introduction to business skills and management practices for success in the visual and performing arts. (3)

**AR 270. Art for the Elementary Teacher.** A study of the child's creative art growth in early childhood, upper elementary and middle school levels. Also an examination and development of relevant and effective art education programs. (3)

**AR 302. Printmaking.** Introduction to basic yet diverse printmaking. Emphasis on relief and mixed-media print techniques. Prerequisite: AR 001. (3)

**AR 303. Screenprinting.** An introduction to basic screenprinting techniques and the development of a portfolio of prints employing autographic and photo processes. Prerequisite: AR 001. (3)

**AR 306. Illustration Concept.** Introductory study of the concepts and techniques of graphic design illustration with traditional illustration and art making materials. Prerequisite: AR 322. (3)

**AR 314. Drawing III: Advanced Problems.** Problems which emphasize concept invention and discovery toward developing a personal drawing style and direction. Prerequisite: AR 001 or consent of instructor. (3)

**AR 318. Graphic Design Internship.** Professional design experience in an appropriate work setting. Prerequisites: AR 001; AR 408; AR 416; completion of 75 hours. (3)

**AR 319. Introduction to Graphic Design.** An introductory study of the principles and practices of graphic design. Prerequisite: AR 001 or consent of instructor. (3)

**AR 320. Watermedia I.** Beginning course in the use of transparent and opaque water-soluble pigments and mixed-media on paper. Co-requisite: AR 001. (3)

**AR 322. Typography I.** Introduction to fundamental concepts of typography and its role in creative graphic design. Prerequisite: AR 319 or consent of instructor. (3)

**AR 323. Art and New Technology.** 2D composition, video art, 3D rendering and the history of electronic technology in art. May be repeated for credit. Prerequisite: AR001 or consent of instructor. (3)

**AR 324. Digital Art Photography.** Exploration of the basic concepts in art photography and video with an emphasis on creative project development. May be repeated for credit. Prerequisites: AR 001; AR 323; or consent of instructor. (3)

**AR 325. Painting.** Introduction to painting in oil on conventional painting supports and grounds using

four basic painting techniques drawn from painterly tradition. Prerequisite: AR 001. (3)

**AR 330. Fibers I.** Basic, introductory overview of fiber media in art including basic weaving, surface design and three-dimensional non-woven forms. Co-requisite: AR 001. (3)

**AR 332. Sculpture I.** Introduction to the basic materials and processes of sculpture with emphasis on fundamental skill development within basic wood construction and metal fabrication. Co-requisite: AR 001. (3)

**AR 342. Ceramics I.** Introduction to three-dimensional forms using additive and subtractive construction processes and the creative possibilities of the potter's wheel. Co-requisite: AR 001. (3)

**AR 352. Gallery and Museum Practicum.** Contemporary practices necessary for the successful operation of professional exhibition spaces. May be repeated for a maximum of 6 hours Prerequisites: AR 001; completion of 45 hours. (3)

**AR 370-372. Independent Study in Art.** Directed individual study to further develop previously learned processes. Prerequisite: AR 001; AR 302 or AR 303; AR 314; AR 325; AR 330; AR 332; AR 342. (1-3)

**AR 376. 3-D Digital Art.** Focus on 3D rendering as fine art. Students will explore output options and art historical relevance. May be repeated for credit. Prerequisites: AR 001; AR 323; or consent of instructor. (3)

**AR 380. (SE 315) Techniques of Teaching Art.** Methods, materials and trends in secondary art. (3)

**AR 399. Professional Practice.** Exploration of the practice and business of being an artist with emphasis on career professionalism, basic art business practices, exhibition and marketing. (3)

**AR 401. Intermediate Printmaking.** Continuing work in intaglio, screenprinting or lithography printmaking. Prerequisites: AR 302; AR 303; AR 501 or AR 502. (3)

**AR 402. Advanced Printmaking.** Expanded research with emphasis on building a body of refined self-directed artwork in intaglio, screenprinting or lithography. Prerequisite: AR 401. (3)

**AR 408. Graphic Design Print Production.** Introduction to basic concepts and technical issues of graphic design print production. Historical, contemporary and technological issues will be introduced. Prerequisite: AR 416. May be repeated for credit. (3)

**AR 409. Digital Illustration.** Advanced study of concepts and techniques of digital illustration. Prerequisites: AR 306 or consent of instructor. (3)

**AR 412. Weaving I.** Exploration of basic woven structures on the mechanical loom with an emphasis on project development, innovation and creativity. Prerequisite: AR 330 or consent of instructor. (3)

**AR 414. Drawing Portfolio.** Offers students the opportunity to use simple, direct and spontaneous drawing processes to develop a personal vision while creating a cohesive portfolio of original drawings. Prerequisite: AR 314. (3)

**AR 416. Advanced Graphic Design.** Advanced graphic design studio course that will explore issues of graphic design issues in corporate identity, branding and communication. Prerequisite: AR 322 or consent of instructor. (3)

**AR 417. Typography II.** Portfolio level course exploring advanced problems in typography through creative projects and study of related contemporary issues. Prerequisite: AR 332 or consent of instructor. (3)

**AR 418. Introduction to Web Design.** Introduction to basic principles and issues concerning web art, design programming and Internet art history. May be repeated for credit. Prerequisites: AR 001; AR 323; or consent of instructor. (3)

**AR 421. Watermedia II.** Advanced watercolor and mixed media techniques. May be repeated for additional credit. Prerequisite: AR 320. (3)

**AR 423. Art Motion Graphics.** Introduction to current concepts and history of responsive environment art, generative art and art animations through basic motion graphics. Prerequisites: AR 001; AR 323; or consent of instructor. (3)

**AR 424. Intermediate Painting.** Focus on concept, execution and technique through contemporary painterly themes. Students will explore a variety of painting media and modes of execution. Prerequisite: AR 325 or consent of instructor. (3)

**AR 425. Sculpture II.** In-depth exploration of three-dimensional, sculptural form within wood construction, metal fabrication, and mixed media with emphasis on uniting sculptural form with individual applied content. Prerequisite: AR 332. (3)

**AR 426. Advanced Painting.** Experimentation and self-directed interactive investigation of media and technique along with further exploration of contemporary trends in painting. Prerequisite: AR 424. (3)

**AR 427. Figure Painting.** Painting the human figure: anatomy, form, color and design. Prerequisite: AR 424. (3)

**AR 431. Sculpture III.** Exploration of contextual use of sculptural materials with emphasis on individual sculptural material research, manipulation and presentation. Prerequisite: AR 425. (3)

**AR 432. Sculpture IV.** Emphasis on expanded research and creation of a body of refined artwork and manipulation of sculptural and exhibition space. Prerequisites: AR 001; AR 425; AR 431; or consent of instructor. (3)

**AR 433. Sculpture V.** Emphasis on professional development relating contemporary practices of professional artists with refinement of self-directed artwork. Prerequisites: AR 432; or consent of instructor. (3)

**AR 434. Surface Design I.** Exploration of basic surface design on fabrics using dyes and pigments in a variety of techniques. Prerequisite: AR 330 or consent of instructor. (3)

**AR 441. Ceramics II.** Exploring ceramics as a material for personal expression with an emphasis on larger ceramic forms and developing pottery wheel skills. Prerequisite: AR 342 or consent of instructor. (3)

**AR 442. Ceramics III.** Personal investigation and exploration of alternative construction and glazing techniques in ceramics to foster expressive sophistication. Prerequisite: AR 441 or consent of instructor. (3)

**AR 443. Ceramics IV.** Explores clay and glazes and their formation, both in practice and in theory, and their significance to creating ceramic art. Prerequisite: AR 442 or consent of instructor. (3)

**AR 447. Advanced Digital Art.** Expanded research and creation of digital artwork; emphasis on building a body of refined artwork. Prerequisites: AR 324; AR 418; AR 423; or consent of instructor. (3)

**AR 448. Digital Art Problems.** Focus on expanded research and the creation of self-directed digital artwork. Emphasis on refining artwork and exhibiting. Prerequisites: AR 001; AR 447; or consent of instructor. (3)

**AR 449. Painting Portfolio.** Focus on professional development in contemporary practice of the professional studio artist. Emphasis on refinement of artwork through a self-directed special problem in painting. Prerequisite: AR 426 or consent of instructor. (3)

**AR 490. BFA Studio Capstone.** Preparation and creation of the Bachelor of Fine Arts senior project. Prerequisite: Permission of instructor. (3)

**AR 501. Intaglio Printmaking.** Introduction to basic yet diverse intaglio techniques and the development of a portfolio of prints using built, hand-drawn and photo plates. Prerequisite: AR 001. May be repeated for credit. (3)

**AR 502. Lithography.** Techniques of stone and polyester plate lithography and development of personal expression. Prerequisite: AR 001. (3)

**AR 520. Figurative Painting.** Covers traditional areas of interest such as portraiture and the studio nude;

also addresses all images of the human figure and its contextual environment. Prerequisite: AR 424. (3)

**AR 529. Surface Design II.** Expands and develops surface design of fabrics for the advanced student for personal expression and content development. Prerequisite: AR 434; or consent of instructor. (3)

**AR 530. Advanced Weaving.** Further exploration of fiber media including weaving and/or surface design and fiber sculpture. Prerequisite: AR 330. (3)

**AR 533. 3-D Fiber Problems.** Provides an exploration of three-dimensional forms in fiber media. Prerequisite: AR 330 or consent of instructor. (3)

**AR 541. Ceramics V.** Preparation for a career as a ceramic artist: personal research and development of techniques, historical relevance, and concepts are emphasized. Prerequisite: AR 443 or consent of instructor. (3)

## **ART HISTORY (AH)**

**AH 110. Art History Survey I.** A study of painting, sculpture and architecture from prehistoric times through the Gothic Age. (3)

**AH 210. Art History Survey II.** A continuation of Art History Survey I from the Renaissance to the contemporary era. Prerequisite: AH 110. (3)

**AH 310. Classical Art.** History of Ancient art with emphasis upon Greek and Roman art. Prerequisite: AH 210. (3)

**AH 311. Modern Art.** History of major developments in the art of the 19th and early 20th centuries. Prerequisite: AH 210. (3)

**AH 312. Renaissance Art.** Study of Italian art history from the late middle ages to the High Renaissance and Maniera. Prerequisite: AH 210. (3)

**AH 400. Seminar: Readings in Art.** Exploration of the theoretical basis of artists and their work. Major emphasis upon 1800 to the present. Prerequisite: AH 311. (3)

**AH 510. Non-Western Art.** Survey of historical and contemporary culture in Central Africa, India, Japan, China, the Middle East and Meso-America. Prerequisite: AH 210. (3)

**AH 511. American Art.** Study of the major contributions of artists living in the U.S. from the time of the Native Americans to the present. Prerequisite: AH 210. (3)

**AH 512. Issues in Contemporary Art and Culture.** Movements in painting, sculpture and architecture as developed in Europe and America beginning with the Armory Show of 1913 and including present trends. Prerequisite: AH 210. (3)

**AH 514. Issues in Renaissance Art.** 13th-16th century Italian art and its relationship to the development of political, social and cultural history. Prerequisite: AH 210. (3)

**AH 516. Issues in Modern Art.** This course will investigate the development of modernism in western culture as it was reflected in the artistic expression of the time. Influences from a variety of cultures will be explored, as will political, economic and social impacts. Prerequisite: AH 210. (3)

**See University Studies (UI) listings for description of:**

**UI 337. Issues in Modern Architecture.** (3)

## **BIOLOGICAL SCIENCES (BS)**

*(Courses with a BS prefix generally do not count on a Biology major or minor.)*

**BS 103. (Cross-listed as SW 103) Human Biology.** Emphasis on human cell, tissue, and organ system function. Discussions focus on a systems approach to human health and disease. (University Studies course) (3)

**BS 105. Environmental Biology.** Discussion of biological principles with application to environmental issues. Two lectures; one discussion/recitation. (University Studies course) (3)

**BS 107. Investigations in Biology.** Biological processes will be used to provide experience in scientific investigation and discussion of implications and limitations. One 2-hour discussion/recitation; one 2-hour lab. (University Studies course) (3)

**BS 108. Biology for Living.** To acquaint the students with and help them to understand some of the fundamental biological processes and problems which confront living organisms. Three lectures. (University Studies course) (3)

**BS 113/013. Anatomy and Physiology I.** First in a two-semester sequence. Introduction to the aspects of anatomy and physiology related to the care of the human body. Particular attention given to cells, tissues, integumentary system, nervous system, circulatory system, skeletal system, and muscular system. Three lectures; one 2-hour lab. (4)

**BS 114/014. Anatomy and Physiology II.** Second course in sequence. Particular attention given to the digestive system, endocrine system, lymphatic system, immune system, respiratory system, urinary system, fluid, electrolyte, acid/base balance and reproductive system. Three lectures; one two-hour lab. Prerequisite: BS 113/013. (4)

**BS 115. Anatomy and Physiology.** A comprehensive anatomy and physiology course emphasizing the digestive, skeletal, muscular, circulatory, nervous, respiratory, urinary, endocrine and reproductive systems. Three lectures; four hours lab. (5)

**BS 118. Introduction to Process Science for Elementary Teachers.** This course will provide elementary teacher candidates with a working knowledge of science, acquisition of scientific knowledge, and the processes of scientific investigation. One 2-hour lab. (1)

**BS 218. Biological Science: A Process Approach.** This course applies scientific thought to structure, function, energetics and ecology of living systems. Two lectures; one 2-hour lab. Prerequisites: BS 118. (University Studies course) (3)

**BS 240. Microorganisms and Their Human Hosts.** Introduction to the anatomy, physiology, cultivation and control of microorganisms, the human immune system, and interactions between humans and microorganisms. Students may not receive credit for both BS 240 and BI 200. Two lectures; one 2-hour lab. Prerequisite: A course in Physical or Living Systems. (3)

**BS 242. Microorganisms and the Human Body.** An introduction to the anatomy, physiology, cultivation and control of microorganisms, the interactions between humans and microorganisms with an emphasis on those of clinical importance and an overview of the human immune system. Not credited on a departmental major or minor or on a medical technology major. Two lectures; one recitation; one 2-hour lab. Prerequisite: A course in chemistry or a course in biology. (4)

**BS 327. Biology of Aging.** Introduces basic structure and function of the human body; describes aging processes occurring at various levels of biological organization. Three lectures. (3)

**BS 332. Human Physiology.** Physiology of the human body. Major emphasis on those body systems which are essential to physical fitness and health care. Two lectures; one 2-hour lab. Prerequisites: BS 103 or BS 105 or BS 107 or BS 108. (3)

**BS 401. (Cross-listed as AO 401) Agriculture and Natural Resource Management.** Application of fundamental agronomic principles to maintain and use natural resources for production, management, recreation, rural development, and posterity. (3)

## **BIOLOGY (BI)**

The major in Biology requires an option to be chosen by the student in consultation with a faculty advisor early in the sophomore year. The seven options

are biomedical sciences; general biology; marine biology; microbiology, cellular and molecular biology and biotechnology; organismal, ecological and evolutionary biology; pre-physician assistant; and wildlife and conservation biology. Courses with a BS prefix do NOT count on a major or minor.

**BI 151. Biological Reasoning.** Use of scientific reasoning and evidence from various biological disciplines to test hypotheses about the common ancestry of organisms. Prerequisite: Must be EN100 eligible. (3)

**BI 152. Introduction to Scientific Investigation.** Introduction to science as conjecture and refutation. Students will conduct multiple studies in which they generate hypotheses, design tests of the hypotheses, and collect, analyze, and present data. Computer-based statistical and graphing functions will be used. One 2-hour lab. Pre- or Co-requisite: BI 151. (1)

**BI 153. Introduction to Organismal Biology.** Course will provide a strong foundation in the unifying concepts and theories that best explain the origin and diversity of living organisms. Students will be introduced to ecological principles underlying natural selection and adaptation. Life processes (e.g., metabolism, growth, reproduction, etc.) will be examined in the context of natural selection. Three lectures; one 2-hour lab. Pre- or Co-requisites: BI 152; CH185. (4)

**BI 154. Genetics and Cellular Biology.** Biological molecules and their interactions, DNA replication, gene expression and regulation, membrane structure and function, cellular organization and cellular energetics. Three lectures; one 2-hour lab. Prerequisites: BI 153; CH 185. (4)

**BI 200. General Microbiology.** An introduction to bacteria, archaeobacteria, eukaryotic microbes, and viruses. A detailed consideration of their structure, metabolism, heredity, diversity, and related laboratory techniques. Two lectures; one 2-hour lab. Prerequisite: BI 154. (3)

**BI 245. Laboratory Methods in Biotechnology.** Theory and practice of common biological laboratory methods: solutions preparation, spectrophotometry, electrophoreses, DNA manipulations, and biological, chemical and radiological safety. One lecture; two 2-hour labs. Pre- or Co-requisite: BI 200. (3)

**BI 261. Introductory Field Biology.** One to two week course involving an introduction to biological field methods. Investigations of ecosystems not normally found within the range of Southeast Missouri. (1)

**BI 262. Field Techniques in Biology.** Basic methods used in an area of field biology as determined by semester title. Weekend field trips may be required. May be repeated up to three times for credit. Prerequisite: BI 153. (2)

**BI 298-299. Biological Research I.** Faculty-directed independent research project. May be repeated once for credit. (1-2)

**BI 300. Introduction to Evolutionary Biology.** An introduction to historical biology, incorporating principles of ecology, systematics, biogeography, and basic principles of evolutionary biology. Three lectures. Prerequisites: BI 154; MA 134 or MA 135 or MA 139 or MA 140. (3)

**BI 332. General Ecology.** An introduction to the fundamental principles of ecology. Two lectures; one 2-hour lab. Prerequisite: BI 154. (3)

**BI 348. Marine Biology.** Introduction to the biology, ecology and conservation of organisms that live in the marine environment. Pre- or Co-requisite: BI 154. (3)

**BI 381. Molecular Genetics.** Intermediate-level survey of genetics. Topics covered include enzymology of gene expression; introduction to gene regulation in prokaryotes and eukaryotes; and techniques of DNA manipulation. Three lectures. Prerequisite: BI 154. (3)

**BI 384. Readings in Biology.** Consideration in-depth of subject matter ordinarily unavailable in the departmental curriculum through reading and discussion of assigned material. Students are limited to a total of 6 credit hours of readings during their program. (1)

**BI 404. Cell Biology.** Dynamics of eukaryotic cellular function, molecule targeting, vesicular trafficking, signal transduction and molecular aspects of cell interactions. Two lectures; one 2-hour lab. Prerequisites: BI 381; CH341/342. (3)

**BI 414. Current Problems in Cell and Molecular Biology.** In-depth consideration of selected topics of current interest in cellular and molecular biology, with emphasis on problem solving and analysis of primary literature. Three lectures; one hour recitation. Prerequisite: BI 381. (3)

**BI 420. Management of Wildlife Populations.** Introduction to theoretical principles and empirical bases for population management of wildlife, and application of these principles. Basic concepts of population dynamics, estimation of population parameters, and population management. Examples emphasize North American species. Weekend field trip may be required. Prerequisite: BI 154 (3)

**BI 430. Management of Wildlife Habitat.** Principles and practices of habitat management for wildlife in North America. Two lectures; one 2-hour lab. One weekend field trip is required. Prerequisite: BI 154. (3)

**BI 432. Advanced Ecology.** Study of the evolutionary interactions among organisms and their environments. Evolutionary stable strategies, life history and foraging strategies, population growth, intra- and interspecific interactions. Three lectures. Prerequisite: BI 332. (3)

**BI 434. Marine Evolutionary Ecology.** Integration of evolutionary and ecological processes that govern community structure and function in the marine environment. Human impacts on the marine environment. Prerequisites: BI 154; BI 332; BI 348. (3)

**BI 435. Conservation Biology.** Discussion of ecological principles relating to conservation of biodiversity, with a review of social, political, and economic constraints. Three lectures. One weekend field trip is required. Prerequisite: BI 154. (3)

**BI 438. Biogeography.** Geographical distribution of biological diversity. Application of theories and methods to explore spatial and temporal patterns of variation and biodiversity. Prerequisites: BI 154; BI 300 or BI 332. (3)

**BI 440. Ecology and Management of Wetlands.** General introduction to structure, function, classification, delineation, and biota of wetlands. Emphasis on the application of principles of wetland ecology to wetland management, with particular attention given to wetland types occurring in the Midwest. One weekend field trip is required. Two lectures and one two-hour lab. Prerequisite: BI 154. (3)

**BI 441. Virology.** A course to acquaint students with the viruses, prions and viroids of animals, plants and bacteria, emphasizing biochemical characteristics, techniques of study and medical and economical importance. Three lectures. Prerequisite: BI 154. (3)

**BI 442. Immunology.** Introduction to modern immunology with an emphasis on the underlying biochemical mechanisms. Two lectures; one 2-hour lab. Prerequisite: BI 154. (3)

**BI 443. (Cross-listed as EV 443) Epidemiology.** Introduction to basic concepts, methods and applications of infectious disease, chronic disease and environmental epidemiology focused on epidemiological reasoning processes. Three lectures. Prerequisite: BI 154. (3)

**BI 445. Microbial Physiology.** A detailed consideration of prokaryotic structure and function, encompassing morphology, metabolism, genetics and growth. Two lectures; one 2-hour lab. Prerequisites: BI 200. (3)

**BI 450. (Cross-listed as BT 450) Investigative Molecular Biology and Biotechnology.** Gene cloning and analysis in an investigative environment. DNA isolation, sequence analysis, recombinant construction,

hybridization, library screening, PCR. One lecture; four hours lab. Prerequisites: BI 381; CH 341; CH 342. (3)

**BI 452. Limnology.** A comparative approach to the ecological study of freshwater systems, including the chemical, physical, and biological components of springs, streams, impoundments, and swamps. One lecture; two 2-hour labs. Prerequisites: BO 200 or ZO 200. (3)

**BI 453. (Cross-listed as EV 453) Occupational Health.** Introduction to the factors influencing occupational incidents and the adverse interactions of environmental and occupational chemical/physical agents with humans. Prerequisites: CH 181 or CH 185; completion of Living Systems (BI or BS) category of University Studies. (3)

**BI 454. (Cross-listed as EV 454) Risk Assessment Applications.** Introduction to concepts, terminology, methods, and applications of qualitative and quantitative health and ecological risk assessment and risk communication. Prerequisites: CH 181 or CH 185; MA 134 or MA 135 or MA 139 or MA 140; completion of Living Systems (BI or BS) category of University Studies. (3)

**BI 455. (Cross-listed as EV 455) Industrial Hygiene.** The study of chemical and physical hazards in the occupational environment and the methods used for their evaluation and control. Prerequisites: BI 200; CH 186; MA 134. (3)

**BI 460. (Cross-listed as EV 460) Introduction to Toxicology.** Introduction to the fundamental principles of toxicology, toxic agents, toxicity testing, mechanisms of toxicity, toxic effects, sources of exposure, and applications of toxicology. Prerequisites: BI 154; CH 185. (3)

**BI 469. Wildlife Toxicology.** Introduction to the principles of environmental toxicology and discussion of the literature on biological effects of environmental toxicants on terrestrial vertebrate wildlife species. Three lectures. Prerequisites: CH 185; BI 154. (3)

**BI 471-473. Internship in Biology.** A supervised learning and work experience in biology which enhances the student's understanding of and appreciation for the application of biological knowledge and skills. Students are limited to six hours of internship credit during their program. (1-3)

**BI 485. Topics in Biology.** Consideration in depth of subject matter that is not a part of the established departmental curriculum. On demand. Prerequisite: Junior standing. (3)

**BI 489. Analysis of Biological Issues.** Integration of knowledge, skills, and experience by students from disparate areas of biology through investigation

of biological issues with broad world or community importance. Prerequisites: 30 hours of BI, BO, BT, or ZO courses. (2)

**BI 493. Readings in Biology.** Consideration in depth of subject matter ordinarily unavailable in the departmental curriculum through reading and discussion of assigned material. Students are limited to a total of 6 credit hours of readings during their program. (2)

**BI 543. Pathogenic Microbiology.** The study of the epidemiology, pathology, isolation, identification, prevention and treatment of clinically significant bacteria and viruses. Two lectures. Prerequisite: BI 200. (2)

**BI 544. Pathogenic Microbiology Laboratory.** Clinically significant bacteria are isolated, identified and studied in theory and practice, with emphasis on the biochemical basis of the procedures. One 2-hour lab. Prerequisite: BI 200. Co-requisite: BI 543. (1)

**BI 551/553. Biology Field Studies.** A one, two, or three week field course involving the study of ecosystems and habitats not normally within range of Southeast Missouri (e.g. grasslands, deserts, estuarine, and montane systems). Prerequisite: BI 154. (1 or 3)

**BI 570. The Development of Instructional Materials for Courses in the Biological Sciences.** Independent study under supervision of a member of the biology faculty. Students design and develop instructional materials for a departmental course. Prerequisite: BI 154. (1)

**BI 589-591. Biological Research.** Investigation of a research project with emphasis on development of controls, evaluation of results and relation to current literature. A summarizing paper may be required. Students are limited to a total of 6 credit hours of research during their program. Prerequisite: BI 154. (1-3)

**See University Studies (UI) listings for descriptions of:**

**UI 303. The Female Experience.** (3)

**UI 317. Human Sexuality.** (3)

**UI 360. Recycling and Waste Management.** (3)

**UI 406. Transforming the Female Experience.** (3)

**UI 415. Science and Religion.** (3)

## **BIOLOGY GULF COAST RESEARCH LABORATORY**

These courses are offered during summers at the Gulf Coast Research Laboratory in Ocean Springs, Mississippi, through an affiliation with the Institutions of Higher Learning of the State of Mississippi. Credit is granted by the University. Department of Biology advisors have additional details.

- BI 352/353. Marine Science II: Marine Biology.** (3/2)  
**BI 541/540. Marine Microbiology.** (3/2)  
**BI 559/560. Coastal Ecology Teacher.** (3/1)  
**BI 571. Marine Science for Teachers.** (3)  
**BI 573-578. Special Topics in Marine Science.** (1-6)  
**BI 579/580. Applications of Biotechnology in Marine Biology.** (3/3)  
**BI 593-598. Special Problems in Marine Science.** (1-6)  
**BO 500/505. Marine Phycology.** (2/2)  
**BO 562/561. Salt Marsh Plant Ecology.** (2/2)  
**BO 563/564. Coastal Vegetation.** (2/1)  
**ZO 500/502. Marine Invertebrate Zoology.** (3/3)  
**ZO 510/511. Comparative Histology of Marine Organisms.** (3/3)  
**ZO 541/540. Parasites of Marine Animals.** (3/3)  
**ZO 544/545. Shark Biology** (3/2)  
**ZO 552/553. Marine Fisheries Management.** (2/2)  
**ZO 554/555. Marine Aquaculture.** (3/3)  
**ZO 559/560. Marine Mammals.** (3/2)  
**ZO 562/561. Marine Ecology.** (3/2)  
**ZO 563/566. Fauna and Faunistic Ecology of Tidal Marshes, Seagrasses and Sand Beaches.** (2/3)  
**ZO 564/574. Marine Ichthyology.** (3/3)  
**ZO 565/567. Early Life History of Marine Fishes.** (2/2)

## **BIOTECHNOLOGY (BT)**

**BT 450. (Cross-listed as BI 450) Investigative Molecular Biology and Biotechnology.** Gene cloning and analysis in an investigative environment. DNA isolation, sequence analysis, recombinant construction, hybridization, library screening, PCR. One hour lecture; four hours lab. Prerequisites: BI 381; CH341; CH 342. (3)

## **BOTANY (BO)**

**BO 200. Plant Biology.** Survey of the structure, function, and evolution of plants, plus relevant introduction to cyanobacteria and photosynthetic protists. Three hours lecture/discussion and one 2-hour lab. Prerequisite: BI 154. (4)

**BO 361. Systematic Botany.** Plant classification. Identification and relationships of seed bearing plants and ferns. One lecture; two 2-hour labs. Prerequisite: BI 154. (3)

**BO 420. Ethnobotany.** The history and traditional methods of plant use by ethnic groups and potential or current applications to modern human needs, such as pharmacy, nutrition, human habitat, clothing, and

industry. Three lectures. Prerequisite: BI 154. (3)

**BO 445. Plant Physiology.** Physiological processes and responses of plants to the environment with emphasis on metabolism, development and transport. Two lectures, one 2-hour lab. Prerequisite: BI 154. (3)

**BO 461. Native Aquatic Plants.** Designed to familiarize the students with the algae and aquatic vascular plants found in the area and their habitat relationships. The course is primarily field-oriented. One lecture; two 2-hour labs. Prerequisite: BI 154. (3)

**BO 469. Field Botany.** Study of plant communities in a variety of habitats, emphasizing the natural history and field identification of local species. One 2-hour lecture/discussion during first 8-week period and two 4-hour labs during second 8-week period. Prerequisites: BI 154; BO 200 preferred. (3)

## **BUSINESS ADMINISTRATION (BA)**

**BA 361. Principles of Entrepreneurship.** Introductory course focusing on the individual entrepreneur, the generation of innovative business ideas, the creation of business ventures and the role of entrepreneurship within society. Prerequisite: Completion of 45 hours. (3)

**BA 363. Small Business/New Venture Financing.** Emphasis on financial problems facing small business and new ventures. Includes business planning, asset management, working capital management, capital budgeting, business valuation, and an examination of funding sources. Pre or Co-requisites: MG 301; MK 301. Prerequisite: FI 361 with grade of 'C' or better. (3)

**BA 458. International Business Internship.** A supervised field experience in international business involving at least 150 supervised contact hours. Prerequisites: Senior standing; International Business major core. (1-6)

**BA 490. Business Policy and Strategy.** A capstone course in business focusing on integrated corporate decision making in terms of strategy formulation, implementation, and evaluation. Prerequisites: All Business Core with a minimum grade of 'C' in each course (except required International course); senior standing. (3)

**BA 521. Topics in Entrepreneurship.** This course focuses upon the critical issues and challenges encountered at different stages in the processes of new venture initiation and growing privately-held companies. Prerequisites: Senior standing or consent of instructor. (3)

**BA 531. Imagination, Creativity and Innovation.** Investigation of imagination, creativity and innovation in the context of one's intrapersonal, interpersonal,

social and organizational environment. Prerequisite: Junior standing. (3)

**BA 551. Managing and Growing the New Venture.** Investigation of fundamental business concepts in the context of successfully launching and managing a new venture. Prerequisite: BA 361. (3)

**BA 560. International Business Study Tour.** Provides a comprehensive theoretical overview of international business, along with an intensive overseas study tour of business and institutions. Prerequisites: MG 301; MK 301. (3)

**BA 561. Business Planning for New Ventures.** Entrepreneurial analysis with a primary emphasis on strategic and business planning for a new venture; an applied course where students develop comprehensive business plans. Prerequisite: BA 361. (3)

**BA 573. Accounting Internship.** A supervised work experience in professional accounting. Forty contact hours are required for each hour of credit. Course may be repeated for credit but may not exceed nine hours total. (1-3)

## BUSINESS LAW (BL)

**BL 255. Legal Environment of Business.** This course examines foundations in law and business relating to regulatory, public and private legal environments, including international and ethical issues. Prerequisite: Sophomore standing. (3)

**BL 455. Contracts.** This course examines foundations of common law and statutory regulations governing contractual relationships, emphasizing commerce under the Uniform Commercial Code. Prerequisite: BL 255 with minimum grade of 'C'; junior standing. (3)

**BL 563. Legal and Ethical Issues in Accounting.** A study of legal issues confronting business decision-makers, including negotiable instruments, debtor-creditor relationships, securities regulation and business organizations. Prerequisite: BL255 with a minimum grade of 'C'. (3)

**BL 573. Internship in Business Law.** A supervised learning and work experience in law which enhances traditional business law courses. Prerequisites: 60 hours of course credit with a minimum 2.75 cumulative GPA or consent of instructor; BL255 or its equivalent with a minimum grade of a 'B'. (1-3)

**See University Studies (IU, UI) listings for description of:**

**IU 300. Cyberlaw.** (3)

**UI 316. Contemporary Legal Studies.** (3)

## CAREER LINKAGES (CL)

**CL 001. Career Linkages I.** Students connect academic and career planning by completing a web-based career assessment. Co-requisite: UI 100. (0)

**CL 002. Career Linkages II.** Students discuss career assessment results with a career counselor and begin profiles on MissouriCareerSource.org. Pre- or corequisite: CL 001. (0)

**CL 003. Career Linkages III.** Students demonstrate minimal proficiency in finding information about career readiness available through Career Linkages and answering 25 question correctly. Update/revise profile on MissouriCareerSource.org. Prerequisite: CL 002. (0)

**CL 004. Career Linkages IV.** Students present for approval either polished resume and cover letters or other specific documentation per department/major instructions; update/revise profile on MissouriCareerSource.org, participate in mock interviews as needed. Prerequisite: CL 003. (0)

## CHEMISTRY (CH)

**CH 180. Chemistry in Our World.** The principles governing the systematic behavior of matter, with applications to life and living. One may not receive credit for both CH 180 and CH 181/001/081. Two lectures and three hours of laboratory. Prerequisite: MA 101 or MA102 or equivalent. (University Studies course) (3)

**CH 181/001/081. Basic Principles of Chemistry.** A one semester survey of the fundamental principles and systematic behavior of matter. Three lecture hours (CH 181), one recitation hour (CH 001), two lab hours (CH 081) must be taken concurrently. One may not receive credit for both CH 181/001/081 and CH 185/005/085. Pre or Co-requisite: MA 101 or MA 102 or equivalent. (University Studies course) (5)

**CH 185/005/085. General Chemistry.** A study of atomic structure, chemical bonding, properties of matter and chemical reactions. Four lectures and two hours laboratory. One may not receive credit for both CH 181/001/081 and CH 185/005/085. Prerequisite: MA 102 or equivalent. (University Studies course) (5)

**CH 186. Foundations of Inorganic Chemistry.** A one semester foundational course in inorganic and general chemistry, including nuclear chemistry, bonding theory, acid-based chemistry, redox chemistry, coordination chemistry, organometallics, the crystalline solid state, thermodynamics, and bioinorganic chemistry. Three lectures. Prerequisite: a grade of 'C' in CH 185/005/085 or 'B' in CH 181/001/081. (3)



**CH 187. Inorganic Chemistry and Qualitative Analysis Lab.** Focus primarily on the synthesis and purification of inorganic and coordination compounds, molecular modeling, the characterization of inorganic materials, and qualitative analysis. Supplements topics discussed in CH 186. Four lab hours. Pre or Co-requisite: CH 186. (2)

**CH 234. Organic and Biological Chemistry.** A survey designed for non chemistry majors or minors covering basic organic chemistry and biochemistry. Two lectures and two-hour lab. Prerequisite: CH 180 or CH 181/081/001 or consent of instructor. (3)

**CH 271. Foundations of Analytical Chemistry.** Theory and techniques of analytical chemistry. Two lectures and four hour lab. Prerequisites: CH 186; CH 187. (4)

**CH 311. Foundations of Physical Chemistry.** A study of the gaseous state, thermodynamics and thermochemistry, nonelectrolyte solutions, electrolyte solutions and chemical kinetics. Four lecture hours. Prerequisites: CH 271; PH 121 or PH 231; MA 139 for BA Chemistry majors; MA 140 for BS Chemistry majors. (4)

**CH 312. Advanced Physical Chemistry.** A systematic study of quantum mechanics, group theory, chemical bonding, molecular spectroscopy, and chemical kinetics. Three lecture hours. Prerequisite: CH 311. (3)

**CH 313. Physical Chemistry Laboratory.** Experimental application of principles of physical chemistry in calorimetry, electrochemistry, molecular spectroscopy, chemical kinetics, and study of gases and liquids. Six lab hours. Pre or Co-requisite: CH 312. (3)

**CH 341. Foundations of Organic Chemistry.** A systematic study of the chemistry of the major functional groups of organic compounds. Course emphasizes reaction mechanisms and synthesis. An introduction to NMR and IR is included. Four lecture hours. Prerequisite: CH 186 and CH 187 with a grade of 'C' or consent of instructor. (4)

**CH 342. Organic Chemistry Lab I.** Acquaints students with basic organic laboratory techniques. Chemistry and properties of selected functional groups will be explored. Three lab hours. Pre or Co-requisite: CH 341. (1)

**CH 343. Advanced Organic Chemistry.** A continuation of Foundations of Organic Chemistry focusing on synthesis, mechanisms of reactions, and spectroscopy of organic molecules. Three lecture hours. Pre or Co-requisite: CH 342. (3)

**CH 344. Organic Chemistry Lab II.** Students will perform selected organic syntheses and develop

skills in semimicro qualitative organic chemistry. Four lab hours. Pre or Co-requisites: CH 343 or consent of instructor. (2)

**CH 391-399. Undergraduate Research.** Original research for students with demonstrated superior ability. On demand. Pre or Co-requisites: UI 443; consent of department. (1-9)

**CH 400. Special Topics in Chemistry.** Special topics in chemistry unavailable in the department curriculum such as electrochemistry, nuclear chemistry, polymer chemistry, industrial chemistry, and surface chemistry. On demand. Prerequisite: Consent of instructor. (1)

**CH 401-403. Independent Study in Chemistry.** Directed individual study of problems in chemistry. On demand. Prerequisite: departmental approval of study plan and compliance with university guidelines for independent studies. (1-3)

**CH 420. Forensic Chemistry.** Applications of the principles, methods, and instrumentation of chemistry to forensic problems. Covers topics most commonly applicable to the everyday functions of a crime laboratory professional. Three lectures and two hours lab. (4)

**CH 447. Advanced 1 and 2 Dim NMR Techniques.** Advanced NMR techniques applied to structure determination. This course will provide theoretical and hands-on-training of various 1D and 2D NMR techniques. Typically taken in final semester of degree program. Two lecture hours and two lab hours. Prerequisite: CH 344 or consent of instructor. (3)

**CH 450. (Cross-listed as EV 450) Environmental Chemistry.** A study of the sources, reactions, transport, and fate of chemical entities in the air, water, and soil environments. Two lectures and two hours lab. Prerequisites: CH 341; CH 342; or consent of instructor. (3)

**CH 498. Professional Presentation in Chemistry.** Student presentation of work done as part of experiential learning activities. Credit/No Credit. Prerequisite: UI 443. (1)

**CH 531. Foundations of Biochemistry.** Structure and function of amino acids, proteins, lipids, and carbohydrates. Generation and utilization of energy. Three lecture hours. May be taken as UI 331. Prerequisite: CH 342 or consent of instructor. (3)

**CH 532. Advanced Biochemistry.** Metabolism and biosynthesis of amino acids, lipids, and nucleic acids. Transmission and expression of genetic information. Two lecture hours. Prerequisite: CH 531 or UI 331. (2)

**CH 533. Biochemistry Laboratory.** Laboratory course dealing with selected biochemical techniques. Major areas of study include amino acids, proteins, carbo-

hydrates, lipids, and nucleic acids. Four hour laboratory. Pre or Co-requisite: CH 531 or UI 331. (2)

**CH 545. Organic Preparations and Characterization.** Preparation and characterization of organic compounds, including formulation of an organic reaction sequence, developing experimental procedures, and characterizing intermediates and products. One lecture and four lab hours. Prerequisite: CH 344 or consent of instructor. (3)

**CH 563. Advanced Inorganic Chemistry.** A course dealing with theoretical and descriptive inorganic and organo-metallic chemistry. Includes inorganic synthesis and characterization. Three lectures and one 2-hour lab. Pre or Co-requisite: CH 312 or consent of instructor. (4)

**CH 565. Inorganic Preparations.** Acquaints students with advanced techniques of inorganic synthesis. On demand. Prerequisite: CH 563. (2)

**CH 572. Environmental Estuarine Chemistry.** Offered summer only at the Gulf Coast Research Laboratory in Ocean Springs, Mississippi. Department advisors have additional details. (4)

**CH 575. Chemical Instrumentation.** The theory and practice of modern instrumental methods of analysis: molecular and atomic spectroscopy, electrochemical techniques and separation science. Two lecture and four lab hours. Pre or Co-requisite: CH 312 with consent of instructor. (4)

**See University Studies (UI) listings for description of:**

**UI 331. Found of Biochemistry.** (3)

**UI 443. Professional Experience in Chemistry.** (3)

## **CHILD AND FAMILY (CF)**

**CF 102. Relationships in the 21st Century.** Insights into relating to others through the framework of dating, committed relationships, family and friends. (3) (University Studies Course)

**CF 119. Child Growth and Development.** An introduction to the physical, cognitive and social-emotional characteristics of children from birth through the primary grade years. (Required for Child Development Associate certification) (3)

**CF 120. (Cross-listed as PY 120) The Child: Development from Conception to Adolescence.** An overview of the social, cognitive, physical and emotional changes that occur from conception to adolescence. Application of principles of development to the understanding of child development and behavior. (University Studies course) (3)

**CF 124. Child Health, Safety and Nutrition.** Essentials of health, nutrition, and safety and its application to the well-being of the child from conception through eight years of age. (Required for Child Development Associate certification) (3)

**CF 125. Essentials of Preschool Education.** An introduction to professional/preparation for early childhood teachers and care givers, including theories and practices developmentally appropriate to promote young children's development. (Required for Child Development Associate certification) (3)

**CF 126. Facilitating Development in Young Children.** An introduction to early childhood education including programs, theories, and optimal learning environments for young children, birth to six. (3)

**CF 200. Guiding Alternatives for Young Children.** Interaction, communication and effective environmental stratagems, along with major trends and acceptable alternatives of guiding young children. (3)

**CF 206. Introduction to Gerontology.** Concepts and issues of aging with emphasis on the research, theories, and resources available for the elderly. (3)

**CF 207. Gerontology Practicum I.** An orientation to the well elderly in our society and their needs involving supervised personal interaction with Eldercare Center participants. One hour seminar and four hours in a supervised laboratory. Prerequisite: CF 206. (3)

**CF 209. Introduction to Family Systems.** Introduction to family systems theory including basic concepts and principles, subsystem alignments, and change mechanisms within the family framework. (3)

**CF 210-211. Field Experience in Early Childhood Programs.** Additional contact and work within an early childhood program with children from birth through six years. Prerequisite: CF 120. (2-3)

**CF 220. Young and Middle Adulthood.** Developmental stages, milestones and processes relevant to young and midlife adults. Special emphasis on the changing nature of intimacy and relationships. Prerequisite: CF 120. (3)

**CF 290. Preschool Participation.** Techniques for planning and implementing a developmentally appropriate program for preschool children that facilitates cognitive, physical, emotional and social growth. Prerequisite: CF 120 or PY 120. Co-requisite: CF 291. (2)

**CF 291. Preschool Participation Laboratory.** Limited planning and participation in activities and routines with preschool children under supervision of Center for Child Studies staff. Three hours lab. Prerequisite: CF/PY 120. Co-requisite: CF 290. (1)

**CF 300. Parent Education.** Involving parents from diverse backgrounds in educating young children; responsive communication and organizational skills; identifying and implementing learning strategies appropriate for parents. (3)

**CF 310. (CF 409) School Age Child Care.** School-age child care programming and administration. Theories and program models; developmentally appropriate practice and environments; assessment of program effectiveness. Prerequisites: CF 120. (3)

**CF 312. Organization and Management of Child Care Centers.** Licensing, staffing, facilities, equipment, and curriculum planning for child care centers. Prerequisite: CF 120. (3)

**CF 316. Prenatal and Infant Growth and Stimulation.** An in depth study of theory and research regarding developmentally appropriate environments for prenatales and infants from conception to age three. Prerequisites: CF 290; CF 291. Co-requisite: CF 317. (2)

**CF 317. Prenatal and Infant Growth and Stimulation Laboratory.** Observation and participation with infants. Limited opportunities for planning and implementing activities. Two hours lab. Prerequisites: CF 290; CF 291. Co-requisite: CF 316. (1)

**CF 320. Adult Life Skills Education.** Overview of andragogy and adult learning style. Content preparations of comprehensive life skills topics and application within the context of families. Two hours lecture; two hours lab. Prerequisite: CF 300 (3)

**CF 340. Family Policy Law and Advocacy.** Family units as legal institutions; history and development of family law principles; overview of public policy process; family advocacy across the lifespan. TB test and criminal background screening required. Prerequisites: CF 102; CF 209; junior standing; or consent of instructor. (3)

**CF 350. (CF 450/004) Assessing and Teaching Young Children.** Experiential learning in child development and care (birth through five). Observation, assessment, curriculum, family involvement processes. Requires TB test, background check, infant-child CPR/first aid. Prerequisites: CF 290; CF 291; CF 316; CF 317. (3)

**CF 400. Family Life Practicum.** A professional field placement in a community service or agency which focuses upon the family. A minimum 120 hour practicum under the direct supervision of a qualified professional in a family service field. (3)

**CF 402. Marriage Interactions.** Study of interactions of marriage partners at different stages of marriage with emphasis on developing communication and decision-making skills. (3)

**CF 403. Child and Family Practicum.** A field experience in which the student is exposed to community service agencies or programs which focus on the child and family. A minimum of 90 hours is required in the practicum under the direct supervision of a professional in a child or family service or agency. Prerequisites: 15 hours of CF courses; CPR certification. (3)

**CF 405. Special Population Practicum.** Professional supervised placement in centers serving young adults/adult special populations. Criminal background screening required. Prerequisites: CF 300 and CF 320; or six hours in human service course; or consent of instructor. (3)

**CF 430. Parent-Child Interaction.** A study of the parent child relationship and the influence the role of parent has upon the growth and development of the child with special focus on differential impact of mothers and fathers. Prerequisites: CF 209. (3)

**CF 501/002. Preschool Child Practicum.** Clinical experience in guidance and care of the preschool child. Prerequisite: CF 350. (3)

**CF 502. Preschool Children and Computer Technology.** Introduction to microcomputer hardware; awareness of computer curricula available; understanding role of computer technology in young child's development. Prerequisite: CF/PY 120. (3)

**CF 506. Theories and Issues in Child Development.** This course examines the theoretical constructs of child development and comparative educational and interactional implications. Prerequisite: CF 120. (3)

**CF 509. Child Life Services.** Analysis of the reactions of children to hospitalization. Discussion of clinical skills related to developmental and psychosocial care of hospitalized children. (3)

**CF 512. Family and Community Resources.** Resource identification, assessment, organization and referral techniques appropriate for professionals working with all ages and all families. Prerequisite: Junior standing or consent of instructor. (3)

**CF 517-518. Gerontology Practicum.** An advanced supervised field experience which focuses upon the administration, staff, schedule, and operation of programs for the elderly. Prerequisites: CF 206; CF 207; or 6 hours of related courses and/or experiences. (2-3)

**CF 520. Family Assessment.** Overview of strategies and tools necessary for assessment of the family system. Administration and evaluation of assessment process. Prerequisites: CF 102; CF 209; CF 402; CF 430; or consent of instructor. (3)

**CF 530. Research and Issues.** Overview of the issues, methodology and conclusions of classical and contemporary research as it relates to children's development. Research will be applied to parenting and to the classroom. (3)

**CF 531. Basic Principles of Applied Behavior Analysis.** Basic principles, procedures, and ethical considerations from the science of Applied Behavior Analysis. Includes history, technical terms, definitions and procedures to teach new behaviors and modify existing behaviors. (Required for ABA certification). (3)

**CF 532. Behavior Assessment and Data Analysis.** Measuring various dimensions of behaviors, functional relationships between independent and their dependent variables within applied settings; designing, conducting and evaluating single-subject research; developing assessment strategies and data sheets. (Required for ABA certification). (3)

**CF 533. Strategies for Behavior Interventions and Change.** Empirically-validated behavior interventions and applied behavior analytic techniques within the context of a variety of applied settings, with considerations of ethics in for their selection and use. (Required for ABA certification). (3)

**CF 534. Supervised Field Experience I.** Supervised independent field-work in settings that apply basic principles of Applied Behavior Analysis under supervision of a board certified ABA analyst. (Required for ABA certification). (Required for ABA certification). (3)

**CF 535. Supervised Field Experience II.** Advanced supervised independent field-work in Applied Behavior Analysis under supervision of a board certified ABA analyst. (Required for ABA certification). (3)

**CF 560. Practicum in Child Life.** An advanced supervised field experience with hospitalized children in selected health care settings and child life services programs. Prerequisites: 75 hours overall; CF 290; CF 291; RC 260; CF 310 with 2.50 GPA ; 2.50 cumulative GPA; or consent of department chairperson. (6)

**CF 565. Family Service Internship.** Capstone professional internship in a human service agency, program or organization. Criminal background check required. Prerequisites: CF 207, CF 340, CF 405, CF 520 with grades of 'C' or better; senior standing with a cumulative GPA of 2.00; or consent of instructor. (6)

## CHINESE (CN)

**CN 101. Beginning Chinese.** Fundamentals of the Chinese sound system, grammar, and vocabulary. Reading and writing with basic Chinese characters.

Introduction to the Chinese culture. (3)

**CN 102. Chinese II.** Continuation of CN 101. Expands on the grammar and vocabulary of CN 101. Continuation in the practice of reading and writing Chinese. (3)

## CLOTHING AND TEXTILES (CT)

**CT 110. Introduction to Fashion Merchandising.** Overview of the design, production, and distribution of fashion goods. Introduction to fashion trade vocabulary, centers of fashion, and career opportunities. (3)

**CT 207. Textiles.** Study of natural and manufactured fibers, yarns, fabric, finishing, and coloring of textile products. Two lectures and one 2-hour lab. (3)

**CT 230. Apparel Analysis.** Styling, material, and construction decisions and their impact on the cost and quality of mass produced apparel. Prerequisite: CT 207. (3)

**CT 300. Professional Image and Behavior.** An examination of business etiquette, dress, and common procedures designed to facilitate smooth transition into the business world. (2)

**CT 350. Apparel Aesthetics.** Visual fine arts principles as applied to the design and selection of mass produced apparel. (3)

**CT 410. Internship in Textile and Apparel Management and Merchandising.** A career-related work experience in merchandising providing professional experience in the student's major area of study. Prerequisites: 75 hours and 2.50 cumulative GPA; 15 hours of CT courses. (6)

**CT 415. Fashion Retailing.** Management of products in retail institutions. Examination of retail formats, product adoption theory, assortment planning, and buying procedures for fashion merchandise. Prerequisites: CT 110; MK 301. (3)

**CT 420. Specialty Markets.** A study of the manufacture and merchandising of specialty markets including menswear, children's wear, footwear, accessories, jewelry, cosmetics, and home furnishings. Prerequisite: CT 110. (3)

**CT 450. Issues and Trends in Fashion Merchandising.** The impact of current social, economic, technological and cultural trends on the merchandising of fashion products. Prerequisite: CT 415. (3)

**CT 517. History of Costume.** An overview of factors which affect form and function of human apparel from ancient times to the present. (3)

**CT 518. Social Psychological Aspects of Clothing.** Social, psychological, economic and cultural factors related to clothing. Prerequisite: PY 101. (3)

**COACHING EDUCATION (CG)**

**CG 205. Coaching of Baseball.** Introduction to the coaching of baseball: fundamental skills, offensive systems, defensive systems, drills, practice organization, and scouting techniques. (2)

**CG 210. Coaching of Basketball.** Introduction to the coaching of basketball: fundamental skills, offensive systems, defensive systems, drills, practice organization, and scouting techniques. (2)

**CG 215. Coaching of Football.** Introduction to the coaching of football: fundamental skills, offensive systems, defensive systems, drills, practice organization, and scouting techniques. (2)

**CG 220. Coaching of Softball and Volleyball.** Introduction to the coaching of softball and volleyball: fundamental skills, offensive systems, defensive systems, drills, practice organization, and scouting techniques. (3)

**CG 225. Coaching of Track and Field.** Introduction to coaching each event in track and field. Emphasis on organization of a team and conducting events. (2)

**CG 235. Coaching of Soccer.** Introduction to the coaching of soccer: fundamental skills, offensive systems, defensive systems, drills, practice organization, and scouting techniques. (2)

**CG 470. Coaching Practicum.** Participation in an approved school athletic program. Emphasis on planning, goal setting, and season and within season training programs. Prerequisites: PE 220; PE 235; PE 341; appropriate coaching course; physical education major or coaching minor. (3)

**COMMERCIAL PHOTOGRAPHY (PG)**

**PG 284. Photography Fundamentals.** Deals with the art of producing aesthetically pleasing photographs while practicing the requisite technical skills. (University Studies course) (3)

**PG 285. Commercial Photographic Lighting.** Employ photographic lighting in a variety of situations. Traditional and digital approaches to photography. Emphasis on commercial applications. Prerequisite: PG 284. (3)

**PG 286. Commercial Studio Photography.** Employ photographic techniques from previous courses to commercial studio practices. Emphasis on principles/practices of studio photography for commercial applications. Prerequisite: PG 285. (3)

**PG 300. Advanced Lighting Technology.** Advanced lighting techniques and concepts such as

high key, low key, family of angles, lighting ratios, diffusion/concentration, surface appearances, reflection, refraction, filtering, filling and cutting to achieve desired photographic effects. Ambient lighting, studio lighting and combination lighting setups for objects and architectural subjects will be explored. Prerequisite: PG 285. (3)

**PG 325. Practices in Commercial Photography.** Topics include photography copyright laws, metadata, photographers' insurance, estimating, bidding, contracting, fee negotiation and invoicing practices. Prerequisite: PG 285. (3)

**PG 384. Commercial Photography I.** Course deals with photographic techniques, skills, theory, materials and processes required to produce quality studio-based commercial photography. Prerequisite: PG 286. (3)

**PG 484. Commercial Photography II.** Problem-solving, concept development and technical skills needed to work with commercial clients, including industrial, architectural, environmental, editorial, retail, product and others. Prerequisite: PG 384. (3)

**COMMUNICATION DISORDERS (CD)**

**CD 110. Language and Culture of the Deaf.** The study of the deaf culture and community, including an introduction to sign language. (University Studies course) (3)

**CD 211. Anatomy and Physiology of the Speech Mechanism.** The study of the structures and functions of speech and hearing systems. Analysis of how normal speech structures function to produce speech. Includes introduction to methods used for speech behaviors. Three hours lecture and two hours lab. Prerequisites: BS 103; sophomore standing. (4)

**CD 225. Phonetics.** The study of clinical and linguistic phonetics. Prerequisite: sophomore standing. (3)

**CD 230. Introduction to Communication Disorders.** A survey of disorders of communication. Emphasis on the nature and causes of the disorders and introduction to the general principles of assessment and treatment. Includes a 1 hour laboratory for completion of observation hours. Prerequisite: sophomore standing. (4)

**CD 340. Normal Speech and Language Development.** The study of speech sound development and the acquisition and development of child language based on content, form and use. Pre- or corequisite: CD 230; sophomore standing. (3)

**CD 371. Anatomy and Physiology of the Hearing Mechanism.** Basic course in hearing science including the physics of sound, anatomy, and physiology of the hearing mechanism, theoretical aspects of the hearing mechanism. Prerequisite: CD 211. (3)

**CD 402. Clinical Practicum in Communication Disorders.** Combined lecture and supervised clinical experience in managing children and adults with communication disorders. A minimum of 30 clock hours must be obtained for the course. Prerequisite: CD 406. (3)

**CD 406. Service Delivery in Communication Disorders.** Study of materials and techniques used in managing children and adults with communication disorders; service delivery, report writing, basic clinical intervention techniques. Prerequisites: CD 211; CD 225; CD 340. (4)

**CD 411. Nature of Assessment and Intervention of Speech and Language Disorders.** The study of etiology, prevention, assessment and intervention in articulation, voice, resonance, fluency and language disorders. Prerequisites: CD 211; CD 225; CD 340. (5)

**CD 426. Hearing Disorders: Audiological Assessment.** Basic course in diagnostic audiology including instrumentation, calibration, case history interview, pure-tone audiometry, speech audiometry, acoustic immittance, electrophysiologic and audiometric interpretation. Prerequisite: CD 371. (3)

**CD 461-463. Independent Study.** Individual study in speech pathology, or sciences basic to speech. Prerequisite: consent of department chairperson and college dean. (1-3)

**CD 510. Multicultural Issues in Communication Disorders.** Introduction to the complex relationships existing between language, society, and communication disorders. A difference versus disorders approach will be utilized in considering communicative issues. Assessment and intervention approaches will also be discussed. Prerequisites: CD 211; CD 225; CD 340. (3)

**CD 525. Audiological Rehabilitation.** Management of hearing impairment and auditory-based learning disabilities in children and adults including psychosocial, technological, educational, and cultural aspects. Pre- or corequisite: CD 426. (3)

**CD 541. Fluency Disorders.** Etiologies, comprehensive assessment and treatment of a variety of fluency disorders, primarily identified by stuttering behaviors in children and adults. Prerequisites: CD 211; CD 225; CD 340. (3)

## COMMUNICATION STUDIES (SC)

**SC 001. Exit Interview.** Required completion in last semester of attendance. Interview with department chairperson regarding student's academic experience in major. (0)

**SC 105. Fundamentals of Oral Communication.** The development of proficiency in oral communication through the study of rhetorical theories, principles, and strategies. (University Studies course) (3)

**SC 107. Online Oral Presentations.** A course in public speaking adapted to the online environment. (University Studies course) (3)

**SC 155. Interpersonal Communication.** Consideration of the elementary principles involved in effective person to person communication. (University Studies course) (3)

**SC 200. Advanced Public Speaking.** Designed to extend skills acquired in SC 105 through study of different types of speeches for various occasions. Prerequisite: SC 105 or consent of instructor. (3)

**SC 215. Intercultural Communication.** Study of such cultural variables as language, values, institutions, traditions, customs and nonverbal behavior on the communication process. (3)

**SC 310. Speech Writing.** Theory and practice of writing the spoken word. Special attention given to matters of style. Study of the role of the illustration as a composition device. Accumulating and structuring supporting material for manuscript speaking. Prerequisite: SC 105. (3)

**SC 314. Argumentation and Problem Solving.** Study of argumentation and decision-making in questions of controversy and public policy (i.e. law, business, social action, politics, education). (3)

**SC 320. Group Communication and Decision-Making.** Principles of group communication and decision-making. Development of skills necessary for effective participation in group settings. (3)

**SC 330. Corporate and Professional Communication.** The study of basic communication principles and the opportunity to apply those principles to typical business and professional communication situations. (3)

**SC 335. Interviewing: Principles and Practices.** A study of the basic principles of interviewing used in informational, persuasive, employment and appraisal interviews. Extensive practice in questioning techniques, structuring and conducting various types of interviews. Prerequisite: 3 hours of Communication Studies. (3)

**SC 355. Relational Communication Strategies.** Study of concepts and theories of communication

strategies in building and maintaining relationships, with emphasis upon improving communication in the workplace. (3)

**SC 360. Experiential Communication Projects.**

Provides students with experiential learning opportunities in communication that include public performance (debate and forensics), teaching internships, consulting, and public event planning and promotion. (1-3)

**SC 406. Communication Principles of Negotiation and Conflict Management.** Study of the utility of negotiation and mediation in community, interpersonal, labor/management, legal, commercial and international disputes. (3)

**SC 463. Independent Study.** Individual study in communication principles and research. Prerequisite: Consent of department chairperson; senior standing and 2.75 GPA. (3)

**SC 482. Special Problems in Communication Study.** Seminar designed for in-depth study and research of a specific aspect of communication studies. Content varies depending on topic. May be repeated for credit. Prerequisite: 75 credit hours or consent of department chairperson. (1-3)

**SC 483. Internship in Communication Studies.** Supervised work with professionals off-campus in communication studies. Prerequisites: 75 hours; 18 hours of speech communication; consent of department chairperson. (3)

**SC 496. Practicum in Communication Studies.** Practical work in corporate communication on campus. Prerequisites: 75 hour with 18 hours in Communication Studies; consent of department chairperson. (3)

**SC 510. Leadership and Team Building.** A study and survey of leadership theories and concepts of team building. Emphasis on communication competencies necessary for successful leadership and teamwork within the organizational culture. (3)

**SC 560. Organizational Communication.** Study of communication functions and networks in organizations. Emphasis on leadership functions and principles needed for effective management of organizational communication processes. Prerequisite: 3 hours of Communication Studies. (3)

**See University Studies (UI) listings for descriptions of:**

**UI 301. Managerial Communication Processes.** (3)

**UI 320. The Modern Presidency.** (3)

**UI 345. Nonverbal Communication.** (3)

**UI 423. Political Communication.** (3)

**UI 425. Persuasion.** (3)

**UI 504. Leaders of Social Change.** (3)

## **COMPUTER AND MULTIMEDIA GRAPHICS (GM)**

**GM 180. Introduction to Technical Graphics.**

Introduction to technical graphics and visual communication technologies. (3)

**GM 200. Vector and Bitmapped Graphics for Industry.** Software, concepts, principles, and elements of bitmapped graphics for multimedia design. Prerequisite: GM 180. (3)

**GM 282. Vector Graphics.** Design/create vector based illustrations and design documents for online media and commercial print; corporate design and vector techniques using Bezier curves; graphics workflow and file management. Prerequisite: GM 200. (3)

**GM 320. Graphic User Interface Design.** Use of industry software for preparation of static based internet content. Principles include: content design, type and layout. Focus on HTML and CSS for internet design and publishing. Prerequisites: GM 282; TN 275. (3)

**GM 326. Interactive Multimedia.** Creation of time based interactive content for the internet while introducing multimedia content design. Use graphic design applications and database applications to produce dynamic internet content. Prerequisite: GM 300. (3)

**GM 380. 3D Modeling and Animation Production.** Introduction to 3D modeling and animation using industry software. Course addresses preproduction, character design, polygonal components, animation, UV layout, shaders, lighting and rendering as required in the production of computer 3D animation for commercial markets. Prerequisites: GM 200; GM 282. (3)

**GM 385. HD Video for Multimedia.** High definition digital video for multimedia with focus on developing videos for commercial applications for exporting to online and optical/electronic media formats. Prerequisite: GM 200. (3)

**GM 386. Interactive Multimedia and Animation.** This course is designed as an introduction to multimedia software and hardware. Topics to be covered are the integration of text, technical graphics, sound, and animation. Prerequisites: GM 200; GM 282; MA 133; MN 260. (3)

**GM 480. 3D Animation Pipeline.** Builds on students' knowledge of applied 3D product modeling and animation to learn complex model topology, shader networks, layered image texturing, lighting, advanced rendering, dynamics and project management for photo realistic 3D animation in commercial (industrial) applications. Prerequisite: GM 380 with a grade of "C" or better. (3)

**GM 490. Advanced Graphics Projects.** Allows students to utilize the skills required while completing their technical graphics courses. Courses stresses problem-solving, critical analysis, application of concepts, principles and creative techniques as taught in the Computer and Multimedia Graphics program. Prerequisites: GM 326; GM 480; PG 384; senior standing. (3)

## COMPUTER SCIENCE (CS)

**CS 003. Computer Science Assessment.** Required of all Computer Science and Computer Information Systems majors. Credit/no credit. Prerequisite: Computer Science or Computer Information Systems major; enrolled in final semester of degree program. Co-requisite: CS 495. (0)

**CS 117. The Information Age.** The impact of information technology on social structures, political, economic, philosophical, and social dimensions. (3)

**CS 120. Introduction to Computer Science.** Broad overview of the field of Computer Science, including algorithms, mathematical foundations, computer logic and architecture, systems software, high level programming languages, applications, and social issues. Lab experience with simulators and applications. Two hours lecture, two hours lab. (3)

**CS 155. Computer Science I.** Fundamental principles of computer science and software engineering concepts, including working from software requirements in order to design, implement, and test programs; introduction to programming in a structured high-level language; significant hands-on experience with programming using a language development system and computer operating system. Three hours lecture and two hours lab. Prerequisite: MA 134 or equivalent Logical Systems course with minimum grade of 'C' or high school equivalent. (4)

**CS 177. Programming for Scientists and Engineers.** Introductory course on computer programming for science and engineering majors. Covers design and development of computer programs using an appropriate language for solving simple problems in science and engineering. Prerequisite: MA 134 with a minimum grade of 'C.' (3)

**CS 245. Discrete Structures I.** Introduction to discrete structures as used in computer science. Topics include proof techniques, fundamental structures, induction, recursion, basic algorithm analysis. Prerequisite: CS 155 with a minimum grade of 'C.' (3)

**CS 265. Computer Science II.** Review of static data structures. Introduction to recursion, abstract data types, classes, and object oriented programming. Implementations, as abstract data types, of the data structures stacks, queues, linked lists and binary trees. Study of the Standard Template Library. Applications of these data structures. Three hours lecture and two hours lab. Prerequisite: CS 155 with a minimum grade of 'C.' (4)

**CS 280. Computer Systems.** Computer hardware and software systems including computer organization, assembly language, and operating systems. Prerequisite: CS 245 with a minimum grade of 'C.' (3)

**CS 300. Computer Science III.** Continued study of data structures, algorithms, object orientation, and standard libraries with an emphasis on practical programming. Three hours lecture and two hours lab. Prerequisite: CS 265 with minimum grade of 'C.' (4)

**CS 315. C and the Unix Environment.** Course provides a thorough introduction to the UNIX operating systems and extensive programming in C. Two hours lecture and two hours lab. Prerequisite: CS 265 with a minimum grade of 'C.' (3)

**CS 331. Applications Programming.** An introduction to the Java programming language for programmers. Prerequisite: CS 300 with a minimum grade of 'C.' (3)

**CS 345. Discrete Structures II.** A continuation of the study of discrete structures in computer science. Topics may include graph theory, computational models, proof of correctness and algorithm analysis. Prerequisites: CS 265; CS 245 or MA138; MA 140 with minimum grades of 'C.' (3)

**CS 350. Analysis of Algorithms.** A continuation of the study of data abstractions and the algorithms for their manipulation. Emphasis on the analysis of non-numeric algorithms. Prerequisite: CS 300 and CS 345 with minimum grade of 'C.' (3)

**CS 360. Computer Organization.** The structured organization of computers with emphasis on the conventional machine level, the microprogramming level, and contemporary aspects of computer architecture. Prerequisites: CS 265 and CS 280 with minimum grade of 'C.' (3)

**CS 373. Introduction to Game Programming.** Explore the fundamentals of 2D game programming, using a high-level programming language and appropriate tool(s). Program and create 2D graphic games. Prerequisite: CS 300 with a minimum grade of 'C.' (3)

**CS 375. Computer Graphics.** Study of principles, problems, and applications of computer graphics in two and three dimensions. Prerequisite: CS 300 with a minimum grade of 'C.' (3)



**CS 380. Computer Operating Systems.** Explores the concepts and implementation of operating systems. Prerequisite: CS 280, CS 300 and CS 315 with minimum grades of 'C'. (3)

**CS 390. Programming Languages.** Properties of algorithmic languages including scopes of declarations, storage allocation, grouping of statements, runtime behavior; introduction to Language and BNF Grammars. Prerequisite: CS 300 with minimum grade of 'C'. (3)

**CS 440. Database.** Basic concepts of database and database architecture. Discussion of entity-relationship and relational database models. Study of the SQL query language. Study of database design methodology. Two hours lecture and two hours lab. Prerequisite: CS 300 with minimum grade of 'C'. (3)

**CS 445. Software Engineering I.** Provides an in depth understanding of the principles and techniques used in the analysis and design aspects of developing applications systems. Apply techniques and tools to produce the system artifacts pertaining to analysis and design. Prerequisites: Senior standing; consent of department; CS 300 with a minimum grade of C; Pre- or corequisite: CS 315. (3)

**CS 455. Topics in Applications Programming.** Advanced topics in applications programming. Prerequisites: CS 300 and CS 315 with minimum grades of 'C'. (3)

**CS 473. 3D Game Programming.** Explore the algorithms, data structures, and techniques in 3D computer game programming. Create complex 3D games utilizing a programming language. Prerequisite: CS 373 or CS 375 with a minimum grade of 'C'. (3)

**CS 480. Data Communications.** Principles of data communication and computer networks. Prerequisite: CS 315 with minimum grade of 'C'; CS 300 strongly recommended. (3)

**CS 481-483. Problems in Computer Science.** Directed study of special topics in computer science through seminars, workshops, forums, etc. (1-3)

**CS 485. Internship in Computer Science.** A supervised learning and work experience in professional computer science which augments computer science and information systems courses taken on campus. May be repeated once. On demand. No credit on Computer Science or Computer Information Systems major or minor. Credit/no credit only. Prerequisites: CS 300; 75 hours completed; 2.75 cumulative GPA; 15 hours CS or IS courses with 3.0 GPA. (3)

**CS 490. Artificial Intelligence.** An introduction to Artificial Intelligence with LISP and PROLOG covering fundamental constructs and algorithms, various knowledge representations and advanced topics.

Prerequisite: CS 300 with a minimum grade of 'C' and two upper level CS courses. Three hours lecture; two hours lab. (4)

**CS 491-493. Independent Study in Computer Science.** Intensive study of computer science topics under faculty supervision. (1-3)

**CS 495. Senior Seminar.** The impact of computing on society; social, professional, ethical, legal and security and privacy issues and responsibilities in the computing field; lifelong learning in the computing field. Prerequisite: Computer Science or Computer Information Systems major; enrolled in final semester of degree program; WP 003. Co-requisite: CL 004. (1)

## **CONSTRUCTION MANAGEMENT (CM)**

### **CM 100. Introduction to Architectural Drafting.**

A beginning residential architectural drafting course that presents basic elements of manual drafting including sketching, equipment use and techniques, scales, measurement, dimensioning, and the basic drawings found in residential plans. Four hours lab and one hour lecture. (3)

**CM 126. Computer Aided Architectural Drafting.** Use of computer-aided design software, hardware and systems to solve problems in graphics. Using AutoCAD to do: simple engineering drawings, basic floor plans, pictorials, dimensioning, elevations, and symbols will be covered. (3)

**CM 226. Residential Architectural Drafting and Design.** Computer aided drafting and design related to detailed working drawings of residential buildings including site, foundation, floor, elevations, sections with emphasis on structural components and construction standards and practices. Prerequisite: CM 126. (3)

**CM 243. Construction Methods and Materials.** Print reading and the study of the materials, procedures and processes utilized in the building construction industry. (3)

**CM 310. Construction Codes and Compliance.** Study of the requirements and applications of the International Code Council codes, including the International Building Codes, International Residential Code and the International Mechanical Code, and the National Electrical Code. Prerequisite: CM 126; CM 243. (3)

**CM 315. Construction Contracts and Legal Issues.** Construction and design contracts, rights, obligations and liabilities of parties engaged in construction that flow from the contracts, laws and business practices common to the construction industry. Prerequisite: CM 126. (3)

**CM 320. Construction Cost Estimating.** Preparation of bid proposals including methods of pricing materials, equipment, and labor for residential and commercial construction projects. Prerequisites: CM 243; MA 134. (3)

**CM 322. Commercial Architectural Drafting and Design.** Introduction to the computer aided drafting and design of commercial and light commercial construction including materials, floor plan design and layout, print reading, mechanical systems, schedules, and the various drawings associated with commercial construction. Prerequisite: CM 226. (3)

**CM 325. Building Mechanical and Electrical Systems.** Overview of the principles and applications of all basic mechanical and electrical systems, with basic design data examples, exploring emerging technology and environmental issues, and referencing essential engineering calculations and data to illustrate principles. Prerequisites: CM 226; CM 243; CM 310. (3)

**CM 330. Construction Planning and Scheduling.** Construction project planning and scheduling principles and practices used by contractors to control time and cost. Prerequisites: CM 243; CM 320. (3)

**CM 343. Construction Surveying and Testing.** Continuation of the study of materials, procedures, and processes utilized in construction as well as land surveying and testing of materials and soils for residential and commercial construction applications. Prerequisites: CM 126; CM 243; MA 133. (3)

**CM 410. Construction Project Administration.** Construction project administration principles and practices. Managing time, people, equipment and costs to build a project on time and to bid. Prerequisites: CM 315; CM 320; CM 330. (3)

**CM 510. Building Information Modeling.** Concepts of Building Information Modeling including creating computer models of buildings for scheduling, sequencing, cost estimating, management, and simulation of construction projects. Two hours lecture; two hours lab. Prerequisite: CM 226. (3)

## **CRIMINAL JUSTICE (CJ, CO, LE)**

**CJ 100. Introduction to Criminal Justice.** General survey of federal, state, and local agencies involved in administration of criminal justice including police, courts, and corrections. (3)

**CJ 110. Introduction to Law Enforcement.** Philosophy, history and problems of law enforcement; organization and jurisdiction of local, state, and federal law enforcement agencies will be examined. Pre or Co-requisite: CJ 100. (3)

**CJ 125. Introduction to Corrections.** Introduces students to problems and the diversity of emphasis being placed on correctional programs. (3)

**CJ 220. Criminal Law.** Examines substantive law, classification of offenses and matters that affect criminal responsibility. Prerequisite: CJ 100. (3)

**CJ 230. Correctional Institutions.** Study of prisons and other correctional institutions. Traces the history, development, types, objectives, and organizations and administration of penal systems. Prerequisites: CJ 100; CJ 125. (3)

**CJ 310. Advanced Police Administration.** Supervision and personnel management practices applied within the law enforcement agencies, first line supervision and middle-management in police agencies. Prerequisites: CJ 100; CJ 110. (3)

**CJ 325. Security Systems.** The role of security and the security industry in criminal justice; physical aspects of the security field; loss prevention in proprietary and governmental institutions; variations in physical security systems. Prerequisite: CJ 100. (3)

**CJ 326. Security/Asset Prevention.** Operation of loss prevention, assets protection, programs in business, industry, government and institutions; emphasis on theft control, employee dishonesty, shoplifting and fire protection. Prerequisite: CJ 325. (3)

**CJ 327. Security Management.** The organization and management of security units in industry, government, business, institutions; the protection of manpower, facilities and other assets; administrative, legal and technical issues. Prerequisite: CJ 325. (3)

**CJ 330. Criminal Investigations.** Examination of techniques employed in the investigation of crimes and the professional application of these techniques. Prerequisites: CJ 100; CJ 110; CJ 220. (3)

**CJ 335. Police Operations.** An examination of the operational components of contemporary police organizations. Examines the development of operational goals and objectives, development of programs and applicability of research findings to strategies. Prerequisites: 9 hours of CJ courses, including CJ 100 and CJ 330. (3)

**CJ 350. Criminalistics.** Introduction to evidence collection and techniques used in the crime laboratory and their relation to each other. Emphasis on scientific and legal requirements for evidence collection and handling. Prerequisites: CJ 330; 5 hours of any natural science course. (3)

**CJ 355. Constitutional Rights of Inmates.** An analysis of the rights of prisoners as guaranteed by the constitution and interpreted through specific cases. Prerequisites: CJ 100; CJ 125. (3)

**CJ 365. Community Based Corrections.** Study of group homes, work release programs, halfway houses, work-study projects and other community based programs. Prerequisites: CJ 100; CJ 125. (3)

**CJ 370. Juvenile Justice.** Designed to acquaint students with the problems of dealing with juveniles in the criminal justice system. Prerequisite: CJ 100. (3)

**CJ 422. Criminal Procedure.** Survey of the legal aspects of criminal procedure from arrest through appeal. Focuses on the law of arrest, search and seizure and the nature of legal proof at criminal trial. Prerequisites: CJ 100; CJ 110; CJ 220. (3)

**CJ 425. Planning and Research in Criminal Justice.** Role and scope of planning and research in Criminal Justice organizations is examined. Prerequisite: CJ 100. (3)

**CJ 435. Seminar.** Examines major problems currently facing the system. Discussion of proposed solutions to the problems identified. Prerequisite: CJ 100. (3)

**CJ 440. Theories and Methods of Offender Rehabilitation.** Analysis and evaluation of current theories and methods of treatment and classification in the correctional environment. Prerequisites: CJ 100; CJ 125. (3)

**CJ 471-473. Independent Study.** (1-3)

**CJ 491. Internship in Criminal Justice.** Practical experience with field agencies. (6)

**CJ 510. Comparative Criminal Justice Systems.** Study of the criminal justice systems of four major countries, including Great Britain, Japan and Sweden. Each country's differing philosophical and practical approaches to criminal justice are analyzed and compared.

**CJ 525. Crime and Criminal Justice Policy.** An examination of how crime and criminal justice programs become public agenda items through the process of coalition, building, implementation and adoption, and finally the scrutiny of evaluation. Current trends such as the Crime Bill and prison capacity examined. Intended as an overview of how crime policy is formulated and adopted into the American political agenda. Prerequisite: Introductory course in criminal justice or consent of instructor. Preferred background in criminal justice or social sciences. (3)

**CJ 535. Civil Law and Liability.** Study of the civil justice system, theories of civil liability in the law enforcement and corrections context. Prerequisite: CJ 100; CJ 220; CJ 355 or CJ 422; CJ 230 or CJ 310; senior standing; consent of instructor. (3)

**CO 491. Internship in Corrections.** Practical experience with field agencies. (6)

**LE 491. Internship in Law Enforcement.** Practical experience with field agencies. (6)

**See University Studies (UD) listings for descriptions of:**

**UI 300. Drugs and Behavior.** (3)

**UI 309. Crime and Human Behavior.** (3)

**UI 343. Transcultural Experience.** (3)

**UI 427. Service and Community** (3)

## **CYBERSECURITY (CY)**

**CY 201. Introduction to Cybersecurity.** Introduction to cybersecurity. Information assurance terminology, issue, polices, and secure system design. Computer forensics investigation, collection and analysis of data, and methodology. Prerequisite: TN275. (3)

**CY 310. Information Security and Assurance.** Essential components and features of an information security system. Methods of system attacks, intrusion detection and prevention. Business and operational issues in information security. Information assurance and trust. Design and construction of secure systems. Prerequisites: CY201; CS300; TN435. (3)

**CY 320. Information Security in Systems Administration.** Securing information through cryptographic and other means of access control. Security in administration of both Windows and Linux-based systems. Legal and policy issues. Prerequisites: CY310; MA464. (3)

**CY 410. Web Application Security.** Development of secure web-based systems. Security mitigation strategies and secure coding. Penetration testing. Security in systems using advanced web technologies. Prerequisites: CY201; IS245. (3)

**CY 420. Computer Forensics.** Implementation of computer forensic methodology. File system analysis in Windows. Response techniques, evidence acquisition, timeline analysis, extraction and recovery of files and data. Dealing with as-yet-unknown malware. Prerequisites: CY320. (3)

## **DANCE (DA)**

**DA 100. Dance Appreciation.** Develops ability to describe, analyze, interpret, and evaluate dance through exposure to writings, discussions, active learning dance experiences, and performances. (University Studies course) (3)

**DA 105. (Cross-listed as TH 105) Rehearsal and Production I.** Training and practical, hands-on experience in performance, crew work, and all aspects of technical production through active participation in

the mounting of departmental productions. May be repeated for credit. (1)

**DA 130. Ballroom Dance I.** Fundamental steps in ballroom dance, including the fox trot, waltz, tango, swing, and cha-cha. (1)

**DA 140. Body-Mind Conditioning I.** An activity-oriented exploration of the Pilates exercise program (the Physical-mind Method) and other body therapies. (1)

**DA 146. Swing Dance.** Course designed to introduce the basic steps of swing dance. Covers partnership technique, dance posture, basic six and eight count rhythms, and footwork patterns. May be repeated for credit. (1)

**DA 186. Beginning Jazz Dance.** Studio course designed for non-majors with limited experience in jazz dance. Course introduces the fundamentals of jazz dance technique while exploring differences in movement quality, energy and rhythm. May be repeated for credit (1)

**DA 211. Ballet I.** Level I ballet technique training for majors, minors, and non-major dancers. May be repeated for credit. (2)

**DA 219. Theory and Practice of Dance.** Theory, skill development and teaching techniques of folk, children's movements (basic rhythms/creative movement), recreational, ballroom, ballet, jazz, and aerobics. Laboratory class. (3)

**DA 221. Modern Dance I.** Level I modern dance technique training for majors, minors, and non-major dancers. May be repeated for credit. (2)

**DA 226. Jazz Dance I.** Level I jazz dance technique training for majors, minors, and non-majors with previous dance training. May be repeated for credit. (2)

**DA 236. Tap Dance I.** Level I tap dance technique training for majors, minors, and non-majors. May be repeated for credit. (2)

**DA 245. (Cross-listed as AR/MU/TH 245) Creating and Managing a Career in the Arts.** Introduction to business skills and management practices for success in the visual and performing arts. (3)

**DA 280. Movement Analysis.** Conceptual based exploration of human movement as the primary expression of Dance and Theatre. (3)

**DA 305. (Cross-listed as TH 305) Rehearsal and Production II.** Advanced training and practical hands-on experience in performance, crew work, and all aspects of technical production through active participation in the mounting of departmental productions. May be repeated for credit. (1)

**DA 311. Ballet II.** Level II ballet technique training for majors, minors, and experienced non-major dancers.

Prerequisites: DA 211; consent of instructor. May be repeated for credit. (2)

**DA 321. Modern Dance II.** Level II modern dance technique training for majors, minors, and experienced non-major dancers. Prerequisites: DA 221; consent of instructor. May be repeated for credit. (2)

**DA 326. Jazz Dance II.** Level II jazz dance technique training for majors, minors, and experienced non-major dancers. Prerequisites: DA 226; consent of instructor. May be repeated for credit. (2)

**DA 336. Tap Dance II.** Level II tap dance technique training for majors, minors, and experienced non-major dancers. Prerequisites: DA 236; consent of instructor. May be repeated for credit. (2)

**DA 380. Choreography I.** Practice in the craft of choreography and utilization of formal structures to compose dances as works of art. May be repeated for credit. Prerequisite: DA 280; or consent of instructor. May be repeated for credit. (3)

**DA 411. Ballet III.** Level III ballet technique training for majors, minors, and junior-level non-major dancers. Prerequisites: DA 311; consent of instructor. May be repeated for credit. (2)

**DA 421. Modern Dance III.** Level III modern dance technique training for majors, minors, and junior-level non-major dancers. Prerequisites: DA 321; consent of instructor. May be repeated for credit. (2)

**DA 426. Jazz Dance III.** Level III jazz dance technique training for majors, minors, and junior-level non-major dancers. Prerequisites: DA 326; consent of instructor. May be repeated for credit. (2)

**DA 430. Principles of Teaching Dance.** An exploration of various methods used to teach dance in the community, private studios, or the K-12 school system. Prerequisites: Two of 411, 421, or 426 and 280. May be repeated for credit. (3)

**DA 436. Tap Dance III.** Level III tap dance technique training for majors, minors, and junior-level non-major dancers. Prerequisites: DA 336; consent of instructor. May be repeated for credit. (2)

**DA 461-463. (Cross-listed as TH 461-463) Independent Study.** Individual study in theatre or dance. (1-3)

**DA 485. Choreography II.** Advanced study in the craft of choreography exploring various approaches to the choreographic process. Prerequisite: DA 380; or consent of instructor. May be repeated for credit. (3)

**DA 490. Dance History.** Study of dance styles and traditions throughout history, focusing on Western culture from 1500 – present. (3)

**DA 495. Dance Ensemble.** Lab dance class designed to enable the student to learn and perform

choreography equivalent to a professional dance company. May be repeated for credit. (1)

**DA 498. (Cross-listed as TH 498) BFA Project.** Preparation, presentation, and assessment of a major artistic project. (2)

**DA 499. (Cross-listed as TH 499) Internship.** Practical involvement in a performing arts company/venue. Credit/no credit. (4)

See **University Studies (UI)** listings for descriptions of:

**UI 433. Aesthetics of Movement.** (3)

## **EARLY CHILDHOOD EDUCATION (CE)**

**CE 330. Classroom Management.** Presents a preventative model of classroom management which includes comparison of various theories and discussion of general positive classroom practices. Prerequisite: EL 120. (3)

**CE 340. Parent/School Collaborations in Elementary/Early Childhood Education.** Emphasizes teacher and school administrator role in the development of parent/school partnerships, and techniques and strategies of effective collaboration. (3)

**CE 365. Connecting Assessment and Curriculum in the Early Years (Birth-Age 8).** Studies assessment, including tests and informal methods such as observations and portfolios. Connects results to individual goals and classroom curricula. Prerequisites: Elementary Block II; CF 290; CF 291. (2)

**CE 366. Developing Curriculum in Early Childhood Education.** Presents developmentally appropriate principles, techniques and materials for use in early childhood programs, and includes field experience. Prerequisites: Elementary Block II; CF 290; CF 291. (4)

**CE 368. Early Childhood Education Field Experience.** Integration of appropriately designed field experiences with early childhood coursework taken in Early Childhood Block. Prerequisites: Elementary Block I; CF 290; CF 291. (3)

**CE 370. Language Development of the Young Child.** Normal language development; theory, sequence, relationship to overall child development, informal assessment, stimulation of language development, management of minor problems. Co-requisite: CE 365. (3)

**CE 433. Student Teaching Experience I.** Professional practicum requiring demonstration of Teacher Work Sample Implementation in school settings. Under the direction of cooperating teachers and university supervisors. Prerequisite: In good standing in Teacher Education Program, successful completion

of PH 218, UI 318. (6)

**CE 434. Student Teaching Experience II.** Intensive professional practicum in school settings. Under the direction of cooperating teachers and university supervisors. Prerequisite: In good standing in Teacher Education Program. Successful completion of PH 218, UI 318, and Student Teaching Experience I (CE 433). (6)

**CE 460. Alternate Student Teaching.** Professional practicum requiring demonstration of Teacher Work Sample Implementation in school settings. Under the direction of a cooperating teacher. (8)

**CE 499. Portfolio Review.** During Block IV Student Teaching, majors pursuing BS in Education - Elementary, Early Childhood, or Special Education - must successfully complete a Teacher Work Sample. (0)

**CE 502-504. Exemplary Programs in Early Childhood Education.** Study of innovative and exemplary programs at the regional, national and international level. Foreign and/or domestic travel required. Prerequisite: CE 366. (1-3)

## **ECONOMICS (EC)**

**EC 101. Economic Problems and Policies.** An introduction to the domestic and international economic problems facing the United States today and an analysis of the policies designed to alleviate these problems. (University Studies course) (3)

**EC 201. Selected Topics in Economics.** Important, current or specific economic topics which may confront the individual personally or as a member of society. May be repeated up to three times. (1)

**EC 215. Principles of Microeconomics.** U.S. market economic system. Demand, supply, competition, pricing, resource allocation concepts applied to issues in business, labor, and public policy. Prerequisites: AD 101 or EP 100; MA 134 or equivalent. (University Studies course) (3)

**EC 225. Principles of Macroeconomics.** Economic concepts, institutions, theories and policies including study of national income, inflation, unemployment, banking system, money, growth and international economics. Prerequisites: EC 215 or AG 245. (3)

**EC 235. Free Market Economics.** Alternative methodology to conventional economics, praxeology, which stresses the deductive approach. Frequently referred to as the Austrian School, this approach dominates the analysis of the strongest proponents of free markets or *laissez faire*. (3)

**EC 335. Monetary Economics.** Analysis of money's role in the U.S. economy. Emphasis on the Federal

Reserve system and monetary policy. Prerequisite: EC 225. (3)

**EC 340. Economics of Growth and Development.** Characteristics and problems of less developed countries. Criteria of growth and development with emphasis on strategies for development. Obstacles to economic growth and policies for promoting growth. Prerequisite: EC 225. (3)

**EC 344. (Cross-listed as EV 344) Environmental Economics.** Application of economic theory to problems faced by environmental managers and policy makers. Prerequisites: MA 134; EC 101 or EC 215. (3)

**EC 350. Development of Economic Thought.** The evolution of economic thinking from ancient Greece to modern times. Examination of the interaction between underlying social and cultural conditions and economic thinking. Prerequisite: EC 101 or EC 215. (3)

**EC 351. Applied Economic Models.** Introduction to the process of data collection, model construction, hypothesis testing and prediction used by economists and social scientists. Prerequisites: MA 134; EC 101, EC 215, or EC 225; any college-level statistics course. (3)

**EC 380. Labor Economics.** The determination of wages, employment and the quantity and quality of work is examined. Prerequisite: EC 225. (3)

**EC 381-383. Economics Internship.** Internship with a public agency or private business firm with approval of the Chair, Economics Dept. The field work will provide first hand experience in the operations of organizations, institutions and firms. Prerequisites: 75 hours of college credit with fifteen hours in economics, including EC 215 and EC 225; a GPA of 2.50 overall; 3.0 GPA in economic courses; recommendation by the department chairperson or designee. (1-3)

**EC 387-389. Independent Study in Economics.** Directed individual study of special interest areas in economics. Prerequisites: Approval of department chairperson; a minimum of 75 semester hours completed; a minimum of 10 semester hours in economics; a minimum overall 2.50 grade point average or a minimum 2.75 grade point average in economics. (1-3)

**EC 410. Macroeconomic Theory.** Analysis of an economy's overall level of output, employment and prices. Several schools of thought are considered. Prerequisite: EC 225. (3)

**EC 420. Microeconomic Theory.** Leading theories of value and distribution with an analysis of price and output determination for firms and industries under various market conditions. Prerequisite: EC 225. (3)

**EC 425. Industrial Organization.** The study of market structures in the U.S. economy. Applies micro-

economic theory to industry studies, including elements of structure, conduct and performance. Prerequisite: EC 215. (3)

**EC 440. Regional Economic Growth and Development.** An examination of the economic forces influencing the performance of urban and regional areas, with a discussion of contemporary urban and regional economic problems. Prerequisite: EC 225. (3)

**EC 470. Public Sector Economics.** The financing of national, state and local governments. Prerequisite: EC 225. (3)

**EC 490. Business Forecasting.** Introduction to the various econometric forecasting techniques available to deal with economic and business prediction. Prerequisites EC 225; introductory statistics. (3)

**EC 498. Economics Seminar.** Assigned readings and a paper designed around a specific economic issue. Intended to integrate economic analysis and reasoning from both macro and microeconomic perspectives. Co-requisites/Pre-requisites: EC 410; EC 420. (1)

**EC 525. Public Policy Economics.** Economic analysis of the functions of government in a market economy. Prerequisite: EC 225. (3)

**EC 561. Managerial Economics.** Application of microeconomic theory to the practical problems faced by decision makers in business environment. Prerequisites: EC 215. (3)

**EC 580. International Economics.** Development and maintenance of trade between nations; trade policies, exchange rate determination, financial activities involved. Prerequisites: Minimum grade of 'C' in EC 215, EC 225 and MA 134; senior standing. (3)

**See University Studies (UI) listings for description of:**

**UI 322. International Political Economy (3)**

**UI 349. Comparative Economic Systems. (3)**

**UI 366. Law and Economics. (3)**

**UI 371. Government and Business. (3)**

## **EDUCATION (ED)**

**ED 480-482. Independent Study in Education.** Directed individual study of problems and special topics in education. Open only to students pursuing the B.S. in Education degree. (1-3)

## **EDUCATIONAL FOUNDATIONS (EF)**

**EF 304. School and Society.** An introductory study of schooling as the principal institution by which American society educates its citizens for life in a democratic social order. Prerequisites: Admission to Teacher

Education Program; Elementary or Secondary Block I; US 105 or US 107; PS 103. Co-requisite: Elementary or Secondary Block II. (2)

**EF 400. Seminar in Educational Issues for Student Teachers.** A seminar connecting student teaching and current educational issues in American schooling, requiring completion of TWS. Prerequisite: Secondary Blocks III. Co-requisites: SE 463; SE 464. (1)

**EF 590. Foundation of Curriculum Development.** An exploration of the school curriculum; consideration will be given to the foundations, principles and issues, and the leadership needed to guide curriculum planning through curricular evaluation. For alternative certification only. (3)

**EF 591. History of American Education.** An examination of education in America from the colonial period to the present, focusing on educational ideas and practices in the context of American social and intellectual history. For alternative certification only. (3)

**EF 592. Philosophy of Education.** A study of the nature of philosophical inquiry in education. Course includes consideration of traditional and contemporary educational thought and the philosophical analysis of the problems of education. For alternative certification only. (3)

**EF 596. Education in American Society.** An examination of education in the social structure of America concentrating on the social forces that affect education in a pluralistic society and on the educational functions of schools and other social institutions. For alternative certification only. (3)

## **ELECTRONICS TECHNOLOGY (ET)**

**ET 160. Basic Electricity and Electronics.** Properties and applications of electric circuit elements, Ohm's and Kirchoff's laws; node and loop equations; AC sources and impedance; magnetic circuits; and digital systems. Prerequisite: MA 134 or MA 135. (3)

**ET 162. DC Principles and Circuits.** A study of DC circuit analysis, circuit theorems, devices, meters, practical applications, and troubleshooting. Prerequisite: MA 134 or MA 135. (3)

**ET 164. AC Principles and Circuits.** A study of AC circuit analysis and theorems, capacitors, inductors, phasors, complex numbers, RL, RC, RLC circuits, filters, and polyphase systems. Prerequisites: ET 162; MA 145 or MA 144. (3)

**ET 194. Fundamentals of Programmable Logic Controllers.** Introduction to Programmable Logic Controls (PLC), principles of how PLC's work and providing practical information and skills about install-

ing, programming, and troubleshooting. Prerequisite: ET 160 or ET 162. (3)

**ET 245. Logic Circuits.** Analysis, design and application of digital devices and circuits including: gates, flipflops, counters, arithmetic circuits, multiplexing, demultiplexing, encoders, decoders, and latches. Prerequisite: ET 160 or ET 162. (3)

**ET 260. Electronic Circuit Design and Analysis.** Analysis, design, and application of diodes, amplifier circuits, based on BJTs, JFETs, and MOSFETs; and various operational amplifier circuits. Prerequisite: ET 164 (3)

**ET 261. Residential Wiring.** Study of the design and application techniques of residential electrical wiring consistent with the National Electric Code. (3)

**ET 262. Electronic Circuit Design and Analysis II.** Fundamentals, analysis, design, computer simulation and application of power amplifiers, filters, oscillators, operational amplifiers, solid-state switching, thyristors, and voltage regulators. Prerequisite: ET 260. (3)

**ET 264. Industrial Electronics.** A study of electronic and electrical devices used for industrial instrumentation and other applications. Topics to include industrial control devices, transducers, sensors, solid state devices, optoelectronics, actuators, electromechanical devices, electrical control diagrams, and telemetry. Prerequisite: ET 260. (3)

**ET 361. Communications Systems.** A study of basic theory, devices, circuits, and systems for the transmission and reception of AM, FM, and PM signals, transmission lines, microwave measurements, wave guides, coaxial lines, tees, couplers, resonant cavities, mixers, detectors, and switches used in communication systems. Prerequisite: ET 262 and PH 120. (3)

**ET 365. Industrial Electrical Power.** Generation, distribution and consumption of electric power. Topics include electric power fundamentals, three phase systems, power factor correction, magnetic systems, and transformers. Prerequisites: ET 164; PH 121. (3)

**ET 366. Microcontrollers.** Introduction to microcontroller based systems including system architecture, instruction set, addressing modes, system timing, system interfacing, and troubleshooting. Prerequisites: ET 245 or EP 305; MN 260. (3)

**ET 367. Motor Control and Drive Systems.** Study of AC and DC motors, modern power semiconductor devices, converters, voltage-fed inverters, pulse width modulation techniques, DC motor drives, and AC motor drives such as variable frequency drives, vector controlled drives, and scalar controlled drives. Prerequisite: ET 365. (3)

**ET 368. Advanced Digital Principles.** A study of the SSI, MSI, LSI, VLSI, programmable logic and memory chips that make up the modern microcomputer. Prerequisite: EP 305 or ET 245. (3)

**ET 370. Computer Peripherals, Networking and Routers.** OSI networking and topologies, beginning router configurations, routing protocols, and introduction LAN switching. Prerequisite: basic computer literacy. (3)

**ET 426. Sustainable Energy Technologies.** Explores carbon footprint management, engineering and economic analysis, payback analysis, and deployment analysis of sustainable energy options for industrial, commercial and residential systems and processes. Prerequisite: ET 365. (3)

**ET 460. Pulse Circuits.** Analysis, design and application of pulse circuits including multivibrators, timers, clock circuits, filtering and wave shaping. Prerequisite: ET 262. (3)

**ET 463. (ET 263) Photovoltaic System Analysis & Design.** Practical utilization of solar energy for industrial, commercial and residential applications. Students will gain an understanding of solar system physics, site analysis, insolation mapping, flat plate collectors, photovoltaics, and economic analysis. Prerequisite: MA 134 or MA 135. (3)

**ET 466. Industrial Instrumentation.** Measuring industrial parameters and converting to coded electrical impulses, converting these impulses to sensory perceived displays. Prerequisite: ET 460. (3)

**ET 468. Industrial Control.** Study of process control fundamentals including electric control systems, open/closed loop control, PID controllers, block diagrams, Laplace transforms, stability, frequency response, steady state error, and distributed controls. Prerequisite: ET 264; ET 365. (3)

**ET 470. Energy Management.** A study of energy auditing, rate structures, economic evaluation techniques, lighting efficiency improvement, HVAC optimization, combustion and use of industrial waste, steam generation and distribution system performance, Distributed Digital Control systems, process energy management, and maintenance considerations. Prerequisite: ET 365. (3)

## **ELEMENTARY EDUCATION (EL)**

**EL 120. Elementary Block I: Field Experience.** An entry level course for students wishing to pursue a career in the field of education. (2)

**EL 210. Instructional Technology in the Classroom.** Provides knowledge of technological tools

available to educators and the opportunity to practice these tools (2)

**EL 274. (Cross-listed as SE 275) Diversity in American Schools.** Exploration of race, ethnicity, and gender issues in schooling today. (3)

**EL 313. Children and the Arts.** To enable the student to integrate dance, music, theatre, and visual art in the educational setting. Co-requisite: Elementary Block II. (3)

**EL 314. Elementary Block II: Field Experience.** Field experiences for the implementation of Block II content course requirements. Prerequisites: Elementary Block I and admission to Teacher Ed Program. (3)

**EL 315. Theories of Learning and Management: Elementary.** A field-based course with emphasis upon the impact of learning theories, effective classroom environments, developmentally appropriate instruction, and student diversity. Prerequisites: Elementary Block I and admission to Teacher Ed Program. Co-requisite: EL 314. (2)

**EL 316. Foundations of Reading Techniques.** This field-based course focuses on competencies of pedagogy of teaching reading. Prerequisites: Elementary Block I and admission to Teacher Ed Program. Co-requisite: EL 314. (3)

**EL 317. Foundations of Language Arts Techniques.** This field-based course teaches competencies for teaching and learning the language arts (reading, writing, speaking, listening, viewing, and visual representation). Prerequisites: Elementary Block I and admission to Teacher Ed Program. Co-requisite: EL314. (2)

**EL 350. Elementary Block III: Field Experience.** Integration of appropriate field experiences with course work taken in Elementary Block III. Prerequisite: Block II. (3)

**EL 351. Teaching Science in the Elementary School.** This field-based course focuses on understanding the elementary science program and related methods and materials. Prerequisites: Elementary Block II, BS 118, and BS 218 or PH 218. Co-requisite: EL 350. (2)

**EL 352. Teaching Social Studies in the Elementary School.** This field-based course focuses on understanding the elementary social studies program and related methods and materials. Prerequisite: Elementary Block II, US 105 or US 107, PS 103, EC 101 and UI 308. Co-requisite: EL 350. (1)

**EL 353. Techniques of Teaching Elementary Mathematics.** This field-based course focuses on understanding the elementary mathematics program and



related methods and materials. Prerequisite: Elementary Block II, MA 118, and MA 230 or MA 318 or MA 418 or consent of instructor. Co-requisite: EL 350. (2)

**EL 354. Corrective Reading Instruction.** This field-based course teaches the use of literacy assessment techniques to enhance teachers' ability to plan appropriate literacy experiences. Prerequisite: Elementary Block II. Co-requisite: EL 350. (3)

**EL 355. Reading Study Strategies and Skills.** This field-based course teaches strategies for the development of communication arts and enhances students' ability to apply these strategies. Prerequisite: Elementary Block II. Co-requisite: EL 350. (2)

**EL 453. Student Teaching Experience I.** Professional practicum requiring demonstration of implementation of the Teacher Work Sample elements in school setting. Under the direction of cooperating teacher and university supervisor. Prerequisite: In good standing in Teacher Education Program. (6)

**EL 454. Student Teacher Experience II.** Professional practicum under the direction of cooperating teacher and university supervisor. Prerequisite: In good standing in Teacher Education Program. (6)

**EL 455. Student Teaching Experience I.** Professional practicum requiring demonstration of implementation of the Teacher Work Sample elements in school setting. Under the direction of cooperating teacher and university supervisor. Prerequisite: In good standing in Teacher Education Program. (8)

**EL 460. Alternate Student Teaching.** Professional practicum requiring demonstration of MoSTEP Quality Indicators in school settings. Under the direction of a cooperating teacher. (8)

**EL 499. Portfolio Review.** During Block IV Student Teaching, majors pursuing BS in Education - Elementary, Early Childhood, or Special Education - must successfully complete a Teacher Work Sample. (0)

**See University Studies (UI) listings for description of:**

**UI 347. Living in a Global Society.** (3)

## **ENGINEERING PHYSICS (EP)**

**EP 100. Physics and Engineering Concepts.** An introduction to the fields of physics and engineering, including methods of analysis and computer applications packages: word processing, spreadsheets, computational software. Pre or Co-requisites: MA 133; MA 134; or MA 135 or higher. (1)

**EP 240. Circuit Analysis.** Direct-current circuits; circuit elements; Kirchoff's Laws; loop and nodal analysis; network theorems; natural forced, and complete

circuit response, steady-state AC circuits, AC power, polyphase circuits, frequency response. Prerequisites: PH 231; MA 240. (4)

**EP 261. Engineering Mechanics Statics.** Bodies in equilibrium. Vectors and vector algebra; forces, moments, and couples; equivalent force systems; frictional forces; structural analysis; distributed forces and properties of surfaces. Prerequisite: PH 230; Pre or Co-requisite: MA 240. (3)

**EP 262. Engineering Mechanics Dynamics.** Bodies in accelerated motion. Kinematics and dynamics of particles; work and energy; impulse and momentum; kinetics and dynamics of rigid bodies; mechanical vibrations. Prerequisite: EP 261. (3)

**EP 263. Mechanics of Materials.** Introduction to engineering materials; concepts of strain, stress, equilibrium; material responses to applied loading/deflection; analysis of engineering components, e.g., beams, thin-walled structures, axisymmetric elements; introduction to structural stability. Three lectures and a two hour lab. Prerequisite: EP 261. (4)

**EP 305. Digital System Design.** Logic circuit elements, logic function and Boolean algebra, combination logic circuits, PLD and CPLD, introduction to VHDL, sequential logic circuits, finite state machine, memory devices and systems. Two hours lecture and one two-hour lab. Prerequisites: PH 121 or PH 231. (3)

**EP 310. Microcomputer and Embedded Systems.** An introduction to microcontroller and embedded systems. Microcomputer hardware organization and software programming; use of microcontrollers in embedded systems. One hour lecture and two two-hour labs. Prerequisites: CS 155 or CS 177; EP 305 or CS 280. (3)

**EP 340. Electronic Circuits.** Physics of diodes; diode applications; physics, biasing, and small-signal models of bipolar junction transistors (BJT's) and field-effect transistors (FET's); frequency response of amplifiers; feedback; oscillators; operational amplifiers; and active filters. Three hours lecture; two hours lab. Prerequisite: PH 121 or PH 231. (4)

**EP 361. Thermal Analysis.** Thermodynamic laws and processes; heat transmission; kinetic theory. Applications to heat engines, turbines, refrigeration, and heat exchangers. Prerequisites: PH 231; MA 245. (3)

**EP 363. Thermal-Fluid Engineering.** Introduction to the laws of thermodynamics, concept of control volumes, thermodynamic properties of materials, behavior of ideal gases, introduction to basic heat transfer modes; introduction to fluid mechanics and Bernoulli's equations. Prerequisite: EP 263. Pre or corequisite: MA 350. (3)

**EP 372. Signals and Systems.** Analysis and design methods for continuous-time and discrete-time systems including signal models, Fourier series and transform, Laplace transforms, discrete Fourier transform, Z-transform, digital filtering, and the Fast Fourier Transform (FFT) algorithm. Prerequisites: EP 240; MA 350. (3)

**EP 374. Control Systems.** Control theory of electrical, mechanical, and electromechanical systems; system elements; system equations and models; system excitation and response; frequency, time, and state space analysis of linear systems. Prerequisite: EP 372. (3)

**EP 411-413. Industrial Internship in Physics.** A supervised learning and work experience in applied physics which enhances the student's understanding of the applications of physical principles to problems in academic and industrial environments. (1-3)

**EP 460. Measurements and Instrumentation.** Techniques of measurement; energy conversion, sensors and transducers; principles and operation of instruments for measurement; data acquisition and processing; automatic control and control elements. Prerequisites: PH 231; MA 245. (3)

**EP 461. Computer Applications.** Use of computers for the solution of physics and engineering problems in mechanics, thermodynamics, electromagnetics, modern physics, applied optics, and selected problems in quantum mechanics. Programming involves Linux, Python, Matlab, and other high-level languages. Prerequisites: CS 177; PH 231; MA 245; or consent of instructor. (3)

**EP 462. Materials Science.** The solid state; structure of solids; mechanical, chemical, thermal, electrical, magnetic and optical properties of materials; behavior of materials in engineering applications. Prerequisites: PH 121 or PH 231; CH 185. (3)

**EP 480. Capstone Design I.** Each student designs, builds, and tests a simple engineering project. Lectures are given on ethics, professionalism, safety, and economic considerations. Pre or Co-requisite: PH 345 or UI 330. (1)

**EP 481. Capstone Design II.** Student teams complete an engineering design project. Emphasizes design prototyping, testing, evaluation, and documentation. Time management, group dynamics, teamwork, ethics, and economics. Prerequisite: EP 480. (3)

## ENGLISH (EN)

**EN 001. Writing Portfolio.** A non-credit forum for undergraduate English B.A. majors (Literature and Writing) to complete the portfolio requirement of that

degree program. Students will finalize revisions of the documents they have been accumulating throughout their undergraduate careers. (0)

**EN 099. Writing Skills Workshop.** In-class workshop and individual tutorials in written communication. Students who do not earn a grade of 'C' or better are given "no credit" and must repeat the course. For students who score below requisite level on University Placement Test. (3)

**EN 100. English Composition.** Focus on techniques of effective written expression. Prerequisite: EN 099 or appropriate score on University Placement Test. (University Studies course) (3)

**EN 140. Rhetoric and Critical Thinking.** Focus on effective written expression in the context of a liberal education; emphasis upon critical thinking and the research paper. Prerequisite: EN 100 or advanced placement. (University Studies course) (3)

**EN 190. Writing and the Environment.** Focus on effective written expression, with particular emphasis on environmental issues; emphasis upon critical thinking and the research paper. All students must complete a service-learning project. Prerequisite: EN 100 or advanced placement. (University Studies course) (3)

**EN 201. Writing About Literature.** Focuses primarily on the writing process within the academic discipline of literature. Emphasis on various critical theories of reading and their application to the writing process as well as to research in the field of English studies at the undergraduate level. Prerequisite: EN 140. (3)

**EN 275. Introduction to Creative Writing.** Theory and practice in various forms of poetry and short fiction. Prerequisite: EN 140. (3)

**EN 301. Writing for Science and Technology.** Practice in design and writing of technical and scientific literature, such as abstracts, lab notebooks, feasibility studies, research proposals, and reports for journals and conferences. Prerequisite: EN 140. (3)

**EN 311. Literary Manuscript Editing Practicum.** A skills course for students who wish to study and practice the proofreading and copyediting of manuscripts which will include literary magazines, independent-press novels and poetry collections, memos, brochures, newsletters, and mass-media articles. (3)

**EN 345-347. Independent Study in English.** Study of topics not included in the basic curriculum. (1-3)

**EN 375. Intermediate Creative Writing.** For undergraduates who desire to improve their imaginative writing in fiction and poetry. In addition to special problems assigned, students will complete a portfolio of their work. (3)

**EN 376. Advanced Composition.** Writing technique in stylistics, expository forms, analyses and criticism. Rhetorical emphasis on writer and audience. Prerequisites: EN 140; any 200-level literature course. (3)

**EN 378. Grammars of English.** Traditional and modern American grammar and usage. Prerequisites: EN 140; any 200-level literature course. (3)

**EN 379. Composition in the Secondary School.** Reviews current composition theory; emphasis on examining student's writing processes and on practical matters of high school composition instruction: design, evaluation, and sequencing of assignments. Prerequisites: EN 140; any 200-level literature course. (3)

**EN 380. An Analysis of Writing Skills in the Elementary School.** Studies types of children's writings, evaluation techniques, and teacher's role in (1) identifying and developing children's writing readiness; (2) introducing children to writing; and (3) motivating children to write. Prerequisites: EN 140; any 200 level literature course. (3)

**EN 381. Language Acquisition.** Introduction to theories of language acquisition, stages in language development, a thorough description of the language of children, and methods of evaluating and extending children's language skills. Prerequisites: EN 140; any 200-level literature course. (3)

**EN 410. (SE 319) Techniques of Teaching English.** Teacher candidates will learn about and apply the methods, materials, and trends in secondary English. (3)

**EN 435. Internship in English.** Practical experience in writing in a professional organization. Prerequisites: English major; 75 hours; 9 hours in major option; cumulative GPA of 2.75; major GPA of 3.0. (3)

**EN 470. Advanced Creative Writing: Poetry.** For undergraduate students who wish to create imaginative writing in poetry, including open form, the formal poem, and the prose poem. In addition to workshop sessions and special problems assigned in class, at least eight imaginative works in poetry must be completed during the term. Prerequisites: EN 140 or equivalent; EN 275 or consent of instructor; any 200-level literature course except LI 243. (3)

**EN 478. Advanced Creative Writing: Fiction.** For undergraduate students who wish to create imaginative writing in fiction, including traditional and experimental short stories, novels, and drama. In addition to workshop sessions and special problems assigned in class, at least two imaginative works in fiction must be completed

during the term. Prerequisites: EN 140 or equivalent; EN 275 or consent of instructor; any 200-level literature course except LI 243. (3)

**EN 486. Sociolinguistics.** Study of language in context, particularly dialects, bilingualism, multilingualism, speech communities, genderlects, and regional/social variations as they relate to linguistic variables. On-campus course, which is also a synchronically interactive telecommunications course. Computer literacy and email access required. (3)

**EN 550. Style in Writing.** Theory and practice of style in written expression, analyzing styles of writers representing various periods and types of writing; focus on the development of style in the student's own writing. Prerequisites: EN 140; any 200-level literature course. (3)

**See University Studies (UI) listings for descriptions of:**

**UI 500. History of the English Language.** (3)

**UI 501. Principles of Language.** (3)

## **ENVIRONMENTAL SCIENCE (EV)**

**EV 201. Environmental Science Seminar.** Consideration of topical environmental issues. Required for environmental science majors; to be taken in sophomore year. Meets concurrently with EV 401. Prerequisites: Minimum of 12 hours in the natural sciences, and sophomore status. (1)

**EV 344. (Cross-listed as EC 344) Environmental Economics.** Application of economic theory to problems faced by environmental managers and policy makers. Prerequisites: MA 134; EC 101 or EC 215. (3)

**EV 365. (Cross-listed as GO 365) Environmental Soil Science.** An investigation of the physical, chemical, mineralogical and microbiological features of soils and an analysis of best land use. Three lectures, one two-hour laboratory and one field trip. Prerequisites: CH 181 or CH 186. (3)

**EV 401. Environmental Science Seminar.** Consideration of topical environmental issues. Required for environmental science majors; to be taken in senior year. Meets concurrently with EV 201. Prerequisites: EV 201, minimum of 30 hours in the natural sciences, and senior status. (1)

**EV 443. (Cross-listed as BI 443) Epidemiology.** Introduction to basic concepts, methods and applications of infectious disease, chronic disease and environmental epidemiology focused on epidemiological reasoning processes. Three lectures. Prerequisites: BI 200; MA 134. (3)

**EV 450. (Cross-listed as CH 450) Environmental Chemistry.** A study of the sources, reactions, transport, and fate of chemical entities in the air, water, and soil environments. Two lectures and two hours lab. Prerequisites: CH 341; CH 342; or consent of instructor. (3)

**EV 453. (Cross-listed as BI 453) Occupational Health.** Introduction to the factors influencing occupational incidents and the adverse interactions of environmental and occupational chemical/physical agents with humans. Prerequisites: Junior standing; CH 181 or CH 185. (3)

**EV 454. (Cross-listed as BI 454) Risk Assessment Applications.** Introduction to concepts, terminology, methods, and applications of qualitative and quantitative health and ecological risk assessment and risk communication. Prerequisites: Junior Standing; CH 181 or CH 185; MA 134. (3)

**EV 455. (Cross-listed as BI 455) Industrial Hygiene.** The study of chemical and physical hazards in the occupational environment and the methods used for their evaluation and control. Prerequisites: Junior standing; BI 200; CH 186; MA 134. (3)

**EV 460. (Cross-listed as BI 460) Introduction to Toxicology.** Introduction to the fundamental principles of toxicology, toxic agents, toxicity testing, mechanisms of toxicity, toxic effects, sources of exposure, and applications of toxicology. Prerequisites: Junior standing; BI 200; ZO 200; CH 186. (3)

**EV 471-473. Topics: Environmental Science.** Special topics in environmental science typically unavailable in the departmental curriculum. May be taken more than once. Prerequisites: EV 201; consent of instructor. (1-3)

**EV 475. Readings: Environmental Science.** Consideration in depth of subject matter ordinarily unavailable in the departmental curriculum through reading and discussion of assigned material. May be taken more than once. Prerequisites: EV 201; consent of instructor and consent of the program director. (2)

**EV 481-483. Internship in Environmental Science.** A supervised experiential learning opportunity in environmental science which enhances the student's comprehension of applied environmental concepts and skills. May be taken more than once. Prerequisites: EV 201; internship learning site must exhibit a demonstrated relationship to the student's major; approval of program internship coordinator. (1-3)

**EV 491-493. Research in Environmental Science.** Original individual research on an environmental science problem of interest to the student. May

be taken more than once. Prerequisites: EV 201; consent of instructor and consent of program director. (1-3)

**EV 551. Hazardous Materials Assessments.** Introduction to the performance of investigative and remedial activities at hazardous waste sites. Three-hour lecture and one mandatory field exercise. Prerequisites: CH 185; CH 186; EV/BI 455; or consent of instructor. (3)

**See University Studies (UI) listings for descriptions of:**

**UI 360. Recycling and Waste Management.** (3)

**UI 386. Environmental Health.** (3)

**UI 387. Environmental Law and Public Policy.** (3)

**UI 429. Environmental Ethics.** (3)

## **EXCEPTIONAL CHILD (EX)**

**EX 302. Language Development of Exceptional Children.** Overview of atypical language development; problems in acquisition of language skills birth through school-age; management of speech/language problems by teachers. Co-requisite: Block II. (2)

**EX 304. Behavior Management.** Theoretical background and rationale for managing student behavior. Emphasizes practical application of respondent, operant and social learning principles. Prerequisites: EX 318; Block II. (3)

**EX 305. Teaching Strategies and Career Awareness for Mildly Handicapped Adolescents.** Emphasis on program alternatives and methods for teaching adolescents with mild disabilities enrolled in secondary school programs. Prerequisites: EX 318; Block III. (3)

**EX 307. The Parent and the Exceptional Child.** Emphasizes role of teachers of exceptional children as parent partners. Stresses methods for collaborating with parents, strategies for accessing community resources. Prerequisite: EX 311. Co-requisite: Block II. (3)

**EX 309. Exceptional Child Education Field Experience Block IIIA.** Integration of appropriately designed field experiences commensurate with exceptional child coursework taken in Block IIIA. Prerequisites: EX 318; Block II. (3)

**EX 311. Introduction to Exceptional Children.** Investigates historical/legal development, library and internet resources, general characteristics and educational needs of categories served, and teacher certification requirements. (3)

**EX 312. Diagnosis and Remediation of Learning Difficulties in Mathematics.** Designed specifically to help teachers learn to use a diagnostic and pre-

scriptive approach in teaching remedial mathematics. Prerequisites: EX 318; MA 118; Block II. (3)

**EX 317. Assessment and Techniques of the Exceptional Child.** Introduction/application of assessment/evaluation processes used in Missouri schools for identification of pupils with disabilities and application of information in development of Individualized Education Program. Prerequisites: EX 318; Block II. Co-requisite: EX 309. (3)

**EX 318. Introduction to Mild/Moderate Cross-Categorical.** An overview of the field of cross-categorical special education, and K-12 students who are placed in cross-categorical settings. Pre- or Co-requisite: EX 311. (3)

**EX 373. Techniques of Teaching the Mild/Moderate Cross-Categorical.** Methods and materials needed in teaching students with mild/moderate disabilities K-12 in cross-categorical settings will be studied. Academic, perceptual, cognitive, pre-vocational, and social skills will be emphasized. Prerequisites: EX 318; Block II. (3)

**EX 390. Psychology and Education of the Exceptional Child.** Characteristics and education of exceptional children, including mental retardation; learning disabilities; behavior disorders; visual, hearing, speech language, physical impairment; gifted. Prerequisite: EL 120 or SE 200 or ME 222; admission to teacher education program. (3)

**EX 460. Alternate Student Teaching.** Professional practicum requiring demonstration of Teacher Work Sample Implementation in school settings. Under the direction of a cooperating teacher. (8)

**EX 471. Student Teaching I: Cross Categorical.** Professional practicum requiring demonstration of implementation of the Teacher Work Sample elements in school setting. Under the direction of cooperating teacher and university supervisor. Prerequisite: In good standing in Teacher Education Program. (6)

**EX 472. Student Teaching with the Mild/Moderate Cross-Categorical.** Intensive professional practicum under the direction of cooperating teacher and university supervisor. Prerequisite: In good standing in Teacher Education Program. (6)

**EX 484-486. Independent Study in Exceptional Children.** Directed individual study of problems and special topics in exceptional child education. Open only to students pursuing the B.S. in Exceptional Child Education degree. (1-3)

**EX 499. Portfolio Review.** During Block IV Student Teaching, majors pursuing BS in Education - Elementary, Early Childhood, or Special Education - must successfully complete a Teacher Work Sample. (0)

**EX 555. Introduction to Autism Spectrum Disorder.** Offers an overview of student characteristics, theory and teaching applications for students with Autism Spectrum Disorder (ASD). (3)

**EX 556. Language Acquisition and Communication Strategies.** Addresses the process of language acquisition and investigates research-based strategies for improving communication in individuals with disabilities. (3)

**EX 557. Behavior Management and Intervention.** Provides an analysis of the principles of behavior management and interventions for individuals with developmental and sensory disabilities. (3)

**EX 558. Research Autism Spectrum Disorders.** Addresses critical issues and trends in the field of developmental disabilities. (3)

## **FACILITIES MANAGEMENT (FM)**

**FM 504. Facilities Management.** A variety of topics will be covered related to facilities and their management, including project management, facility planning, maintenance, energy management, cost estimating, accounting, preventative maintenance, and others. (3)

**FM 544. Sustainable Construction Materials and Technologies.** Green Building designs for residential and light commercial facilities based on LEED -H and National Green Building (ANSI-ICC-700) standards. Topics include energy efficiency, building codes, green construction methods and environmentally friendly construction practices. Prerequisite: FM 504 or consent of instructor. (3)

**FM 554. Facilities Operation and Supervision.** Facilities management topics based on core competencies of the International Facility Management Association involving management of corporate needs, health safety, security, operation and maintenance of physical facilities. Prerequisite: CM 226 or consent of instructor. (3)

**FM 564. Sustainable Facilities Planning and Design.** Sustainable construction and green building design for large commercial facilities based on LEED standards. Topics include locality, energy systems, controls, materials, water, planning and design using sustainable construction methods. Prerequisite: FM 544. (3)

**FM 565. Building Energy Management.** Energy efficiency strategies for commercial and residential building energy systems. Topics include passive and active energy systems, climate and comfort parameters, environmental implications of the buildings, and carbon footprint management. Prerequisite: ET 365. (3)

## **FAMILY ECONOMICS AND MANAGEMENT (FE)**

**FE 200. Family Resource Management.** Analysis and evaluation of resource management concepts within family systems. Emphasis is on management of economic and human resources. (University Studies course) (3)

**FE 400. Family Resource Management Practicum.** Capstone practicum designed to place the student in community agency/organization or advocacy group which address management and financial issues relevant to families. Prerequisites: Completion of 15 hours in the Family Economics Management minor or permission of instructor. (3)

See University Studies (UI) listings for description of:

**UI 355. Consumer and the Market.** (3)

## **FINANCE (FI)**

**FI 260. Personal Finance.** Study of personal financial decisions including investments, real estate, insurance, personal taxes, estate planning, tax shelters and financial planning. (This course is not applicable on Accounting or Finance majors.) (3)

**FI 351. Principles of Insurance.** Survey course covering general principles of insurance. Prerequisite: Junior standing. (3)

**FI 361. Financial Management.** Financial structure and problems of modern business corporations. Prerequisites: AC 222, EC 225, with a minimum grade of 'C'; junior standing. (3)

**FI 362. Advanced Financial Management.** Emphasis is placed on the examination of the financial policies of corporations pertaining to dividend policy, capital structure, and investment. Prerequisites: FI 361 with a minimum grade of 'C'; QM 257 with a minimum grade of 'C'. (3)

**FI 363. Entrepreneurial Finance.** Emphasis is on financial problems facing the small business. Such problems include funding, working capital management, and capital budgeting. Prerequisite: FI 361 with a minimum grade of 'C'. (3)

**FI 364. Modern Financial Institutions.** Comprehensive survey of the role of each of the major financial institutions in our economy. Prerequisite: FI 361 with a minimum grade of 'C'. (3)

**FI 365. Real Estate Principles and Practices.** Study of the nature of real estate and its ownership. The course is a survey of real estate topics that includes fundamental principles of real estate investment, appraisal, mortgage finance, brokerage and development.

Prerequisites: FI 361 with a minimum grade of 'C'; Junior standing. (3)

**FI 368. Investments.** First course in investments. Provides information on planning an investment program, selection of securities, growth stocks and related topics. Prerequisites: FI 361 with a minimum grade of 'C'; QM 257 with a minimum grade of 'C'. (3)

**FI 471. Internship in Finance.** A supervised learning and work experience in finance which enhances finance courses taken on campus. On demand. Prerequisites: junior standing with 9 hours of FI prefix courses; GPA of 2.75 overall and in FI courses. (1)

**FI 473. Internship in Finance.** A supervised learning and work experience in finance which enhances finance courses taken on campus. On demand. Prerequisites: junior standing with 9 hours of FI prefix courses; GPA of 2.75 overall and in FI courses. (3)

**FI 475. Futures Seminar.** Fundamentals, strategies, and applications of agricultural and financial futures contracts and markets. Prerequisites: Senior standing and FI 368 or AG 447 with a minimum grade of 'C' or consent of department chairperson. (3)

**FI 480. Financial Policy.** A case course that examines the complex issues of establishing financial policy for organizations, i.e., appropriate capital structure, dividend policy, etc. Prerequisites: FI 362 with a minimum grade of 'C'; senior standing. (3)

**FI 481-483. Problems in Finance.** Directed study of special problems in finance through seminars, workshops, forums, etc. On demand. (1-3)

**FI 491-493. Independent Study in Finance.** Intensive study of special problems related to finance. (1-3)

**FI 540. International Finance.** An examination of the operations and financial strategies of multinational firms within a global environment. Prerequisites: FI 361 with a minimum grade of 'C'; senior standing. (3)

**FI 568. Portfolio Seminar.** Examination of the concepts relating to modern portfolio theory. Topics include EMH, risk, portfolio performance, and related topics. Prerequisite: FI 368 with a minimum grade of 'C'. (3)

## **FOOD AND NUTRITION (FN)**

**FN 150. Introduction to Hospitality Management.** An introduction to management opportunities in the hospitality industry. A realistic overview of career requirements, potentials, and constraints. (3)

**FN 205. Selection and Preparation of Foods.** Basic principles in the culinary arts including food selec-

tion, recipe utilization, and food production in a lecture and laboratory setting. Prerequisite: FN 235. (3)

**FN 235. Nutrition for Health.** This course examines, analyzes, and evaluates the relationships between the science of nutrition, health, and well-being. (University Studies course) (3)

**FN 255. Nutrition I.** The foundations of human nutrition based on the principles of chemistry and molecular biology. Prerequisite: CH 181 or CH 185 or consent of instructor. (3)

**FN 260. Meeting and Event Management.** Aspects of organizing and executing successful meetings and events including: planning, timing, budgeting, scheduling, staffing, coordinating lodging, food/beverage and legal/ethical issues. Prerequisite: FN 150 or consent of instructor. (3)

**FN 270. Hotel and Resort Operations.** Introduction and overview of guest services, operations of front and back offices, systems interaction, and guest experience in hotel and resort organizations. Prerequisites: FN 150 or consent of instructor. (3)

**FN 304. Food, Beverage and Labor Cost Controls.** Principles and procedures in food and beverage procurement and labor control systems. Prerequisites: AC 221; FN 205. (3)

**FN 320. Essentials of Food Science.** Application of food science principles and their effects on product quality, recipe development, nutritive value and current assessment techniques. Prerequisites: CH 181; CH 234; FN 205; HL 303. (4)

**FN 325. Hospitality Law.** Legal ramifications of operating a hospitality organization emphasizing loss prevention, regulatory agencies, the employer's responsibility to guests and employees. Prerequisites: FN 150; FN 270. (3)

**FN 340. Professional Dietetic Seminar.** Critical analysis of career options in dietetics and the impact of legislation, professional ethics, and standards on current dietetic practice/procedures. Prerequisite: FN 235 or FN 255. (1)

**FN 350. Culinary Theory and Practice.** Advanced principles of culinary arts and practice including culinary principles, standards of quality, preparation technique, methods and processes. Prerequisites: FN 205; FN 304. (3)

**FN 355. Lifespan Nutrition.** A study of nutrition principles related to various stages in the life cycle. Prerequisites: CH 181; FN 235 and/or FN 255; BS 113; BS 114. (3)

**FN 370. Nutrition Assessment.** Demonstration and use of methodologies assessing food and nutrition behaviors and status of individuals and groups in

clinical and community settings. Prerequisite: BS 113; BS 114; FN 235 and/or FN 255. (3)

**FN 390. Hospitality Sales and Marketing.** The importance of a formalized sales and marketing program in successful hotel, restaurant and tourism operations. Prerequisites: FN 150; FN 270; MK 301. (3)

**FN 401. Sports Nutrition.** Basic theory and application related to nutrition for athletic performance. Application of sports nutrition concepts for recreational and elite athletes. Prerequisite: FN 235 or FN 255 or consent of instructor. Prerequisite: HL 331. (3)

**FN 406. Hospitality and Institution Administration.** Food service systems management concepts, tools, and functions are used to meet organizational goals through effective leadership and problem solving applications. Prerequisites: FN 205; FN 304. (3)

**FN 416. Quantity Food Production.** Menu planning preparation, sanitation and service in a quantity production environment. One 2 hour lecture and two 2-hour lab. Prerequisites: FN 205 with a minimum grade of 'C'; FN 304; FN 320 or FN 350; FN 406. (4)

**FN 425. Health, Nutrition and Safety of the Young Child.** Essentials of health, nutrition and safety as applied to the well-being of the child from conception through age eight. (3)

**FN 473. Internship in the Hospitality Management.** A career-related work experience in Hospitality Management which focuses on skill development and application of academic principles and concepts. May be repeated for credit. Prerequisites: 75 hours completed; 2.50 cumulative GPA; 18 hours completed in hospitality management courses with a 2.50 GPA; or consent of program director and department chairperson. May be repeated for credit up to 12 hours. (4)

**FN 502. Nutrition II.** Study of metabolism of proteins, fats and carbohydrates, stressing the action and interaction of nutrients within the human body. Prerequisite: BS 113; BS 114; CH 234; FN 255; FN 355. (3)

**FN 503. Medical Nutrition Therapy I.** Part one of the in-depth study of pathophysiology and the principles of medical nutrition therapy for various disease states. Three hours lecture and 2 hours lab. Prerequisites: BS 113; BS 114; FN 502. (4)

**FN 504. Medical Nutrition Therapy II.** Part two of the in-depth study of pathophysiology and the principles of medical nutrition therapy for various disease states. One hour lecture and 6 hours clinical rotation. Prerequisite: FN 503 or consent of instructor. (4)

**FN 515. Yield/Revenue Management for Hospitality Industry.** Principles of revenue maximization and factors impacting revenue management decisions such as room sales, food and beverage activity and special events. Prerequisites: FN 270; FN 304; or consent of instructor. (3)

**FN 520. Nutrition and Aging.** A study of the nutritional needs of the mature adult population with consideration of the physiological, psychological and socioeconomic changes associated with aging. Prerequisites: FN 370; FN502. (3)

**FN 525. Nutrition Counseling.** Principles of nutrition counseling theories, behavior change models, approaches for nutrition counseling, skill development and application in nutrition counseling setting. Prerequisites: FN 235 or FN 255; FN355; FN 370. (3)

**FN 530. Implications for Nutrition and Exercise Science: Pathophysiology.** An in-depth examination of nutrition and exercise and their relationship to pathophysiology. Prerequisites: FN 502; HL 331; or consent of instructor.

**FN 540. Community Nutrition.** Fundamentals of nutrition care and delivery in community programs with a special focus on cultural diversity, nutrition education assessing and meeting community needs at the local, state and federal levels. Prerequisites: FN 235 or FN 255; FN 355; FN 370; or consent of instructor. (3)

**FN 550. Vitamin Metabolism.** Focus on the theories and principles of vitamin metabolism and their application to health promotion and disease prevention. Prerequisite: FN 502 or consent of instructor. (3)

## FOREIGN LANGUAGES (FL)

**FL 205. Art of French Cinema.** A study of artistic elements of French cinema through critical examination of directors, themes and techniques. In English; no knowledge of French required. Prerequisite: EN 100 or equivalent. (University Studies course) (3)

**FL 311. Survey of French, German and Spanish Literature.** Comparative survey of French, German and Spanish literature with an emphasis on masterpieces of various literary movements. Prerequisite: FR 220, GN 220, SN 220 or consent of instructor. (3)

**FL 400. Practicum in Foreign Languages.** Applied and theoretical study of foreign language teaching in which students are paired with and supervised by faculty members. Prerequisite: Consent of instructor. (3)

**FL 410. Independent Study in Foreign Languages.** For senior French, German or Spanish majors. Prerequisite: Consent of department chairperson and college dean. (3)

## FORENSIC SCIENCE (FS)

**FS 550. Crime Laboratory I: Microscopy.** Introduction to the techniques of forensic microscopy in the analysis of physical evidence. Four lab hours. Prerequisite: CH 344 or consent of instructor. (2)

**FS 552. Crime Laboratory II: Blood and Fluids.** Introduction to the techniques of forensic serology in the analysis of biological evidence. Four hour lab. Prerequisite: CH 344 or consent of instructor. (2)

## FRENCH (FR)

**FR 001. French Exit Exam.** All majors are required to enroll in this non-credit-bearing exam during their senior year. At the time of the exam, students must present their portfolio containing documents they have been accumulating in their major throughout their undergraduate career. The course number FR 001 will appear on the Degree Audit. Prerequisite: Students must have completed all coursework in French or be in their last year of completing the coursework. (0)

**FR 100. French Language and Culture I.** Acquisition of an appreciation of the culture of French-speaking peoples and study of speaking, understanding, reading, and writing French. (University Studies course) (3)

**FR 120. French Language and Culture II.** Continued study of the culture of French-speaking peoples through the practice of speaking, understanding, reading, and writing French. Prerequisite: FR 100 or equivalent. (University Studies course) (3)

**FR 200. French Language and Culture III.** Continued study of French language and culture. Cultural conversational and structural activities leading to increased proficiency and cross-cultural awareness. Prerequisite: FR 120 or equivalent. (University Studies course) (3)

**FR 220. French Literature.** Designed to develop ability to read French literary texts; to acquaint students with a selection of major French authors; to introduce basic concepts of literary analysis; to increase students' ability to speak and understand French through class discussions in French. Prerequisite: FR 200 or equivalent. (University Studies course) (3)

**FR 301. Intermediate French Composition.** Review of the fundamentals of grammar; stylistic analysis of famous authors; free composition. Explication de textes. Prerequisite: FR 220. (3)

**FR 302. Experiencing French Language and Culture.** Sharing a residence hall (one semester) with an international, native French-speaking student.



Prerequisites: Limited to non-native, French-speaking students concurrently enrolled in a French class (200-level or above) living with native French-speaking roommate in designated residence hall; cum. GPA 2.00 or better. (1)

**FR 305. Conversational French.** Practice in spoken language; prepared talks based on contemporary French periodicals and famous short stories; free discussion of current topics. Prerequisite: FR 220. (3)

**FR 306. Contemporary France.** Study in recent social and cultural issues and events in France (discussion in French). Materials include current French periodicals, slides and tapes. Prerequisite: FR 220. (3)

**FR 311. Survey of French Literature II.** From 1800 to present. Prerequisite: FR 220. (3)

**FR 315. Commercial French.** Review of correct written expression, letter style, preparation of business transactions, and the economic structure of France. Prerequisite: FR 220. (3)

**FR 320. French Pronunciation and Phonetics.** Detailed study of French vowel and consonant sounds, rhythm and intonation: intensive practice in hearing and pronouncing the sounds of French. Prerequisite: FR 220. (3)

**FR 330. French Grammar.** Review of the elements of French grammar and study of the essential structures of the language. Prerequisite: FR 220. (3)

**FR 402. Independent Study in French.** Advanced-level study of language, culture, or literature for French majors. May be repeated once for credit. Prerequisites: FR 220; consent of department. (3)

**FR 415. Seventeenth Century French Literature.** Study of masterpieces composed during the French Classical period. Emphasis on the dramas of Corneille, Racine and Moliere. Prerequisite: FR 220. (3)

**FR 430. Twentieth Century French Literature.** Study of the major trends of French literature from World War I to the present. Prerequisite: FR 220. (3)

**FR 495. Foreign Language Internship in French.** Work experience using French in a professional setting in a business or agency. Prerequisite: French major; Jr. standing with 24 hours in French; 2.50 cumulative GPA and 3.0 in French; approval of Department of Foreign Languages and Anthropology; a level of proficiency in French appropriate to the professional setting as evaluated by the departmental assessment procedures. (3)

**See University Studies (UI) listings for description of:**

**UI 362. Contemporary French Culture.** (3)

## **GEOGRAPHY (GG)**

**GG 150. Peoples and Places of the World.** Spatial treatment of ethnic diversity of the world's macro cultures (e.g. Europe) and contemporary social problems associated with economic development. (University Studies course) (3)

**GG 170. European Peoples and Civilization.** An examination of the geographical expansion of distinctive peoples and regional cultures of Europe. Themes include hearth areas, patterns of diffusion, areas of distribution, and conflict between cultures. (University Studies course) (3)

**GG 180. Cultural Geography.** Study of the inter-relationship of the components of human cultures, i.e., belief, social and material systems. Emphasis on social geographic principles and issues. (University Studies course) (3)

**GG 181. Cultural Heritage Travel: An Introduction.** An overview of the concepts of cultural and heritage travel and a description of the history of the travel industry. Two Saturday field trips required. (3)

**GG 320. Political Geography.** Analysis of ways in which man organizes space for political purpose. Case studies of interactions of geographical areas and political processes. (3)

**GG 497. Geography Internship.** Internship with approved professionals in selected Geotourism programs. Experience in all phases of Geotourism agency operation. Prerequisites: Senior standing; completion of all degree requirements; 2.50 GPA in major; 2.25 cumulative GPA; faculty advisor's approval. (12)

**GG 561-563. Advanced Topics in Geography.** Lectures, discussions, laboratories, field trips and assigned readings in various fields of geography. Topics vary. May be taken more than once. (1-3)

**See University Studies (UI) listings for descriptions of:**

**UI 307. Economic Geography.** (3)

**UI 308. Cultural and Physical Landscapes of the World: A Geographical Analysis.** (3)

**UI 401. American Cultural Landscapes.** (3)

## **GEOSCIENCES (GO)**

**GO 110. Physical Geology.** Comprehensive introduction to geology; earth materials, internal and external processes, time, resources and environmental hazards. Two lectures, one lab per week. (3)

**GO 150/050. Earth Science: Environmental Hazards.** An examination of Earth's systems, how they work, and how they relate to people, with emphasis

on resulting natural and man-made hazards to society. Two lectures, one lab per week. (University Studies course) (3)

**GO 220. Meteorology.** Basic principles of atmosphere, air mass analysis, and fundamental laws governing weather forecasting. (3)

**GO 305. Environmental Geoscience.** Natural earth systems and cycles, natural hazards, mineral and energy resources, waste disposal, and environmental planning. Prerequisite: GO 110. (3)

**GO 320. Oceanography.** Introduction to historical, physical, chemical, geologic, and biological oceanography, including man's interaction with the ocean. Prerequisite: GO 220. (3)

**GO 340. Remote Sensing.** An introduction to the principles/ concepts of remote sensing, its applications, and its significance in today's world. Two lectures, one lab per week. Prerequisites: GO 110; MA 133; MA 134; or consent of instructor. (3)

**GO 365. (Cross-listed as EV 365) Environmental Soil Science.** An investigation of the physical, chemical, mineralogical and microbiological features of soils and an analysis of best land use. Three lectures, one two-hour laboratory and one field trip. Prerequisites: MA 134; CH 186. (3)

**GO 445. Geographic Information Systems (GIS).** An introduction to the theory, methods, and applications of GIS for spatial data analysis. Two lectures; one lab per week. Prerequisites: IS 175; GO 340; MA 223 or SO 242; or consent of instructor. (3)

**GO 458. Environmental Geochemistry.** Application of chemical principles to the study of near surface environments. Prerequisite: CH 186. (3)

**GO 460. Environmental Hydrology.** An introduction to the interrelationships between the environment and the occurrence, distribution, movement, and chemistry of water. Emphasizing the influence of geologic processes and materials on surface water, groundwater, and fluid and contaminant transport through the vadose zone. Two lectures; one lab per week. Prerequisites: GO 110; MA 134; or consent of instructor. (3)

**GO 471-473. Special Topics.** Lectures, laboratories, field trips, and seminars on topics in the geosciences not covered by the regular curriculum. Prerequisite: Consent of instructor. (1-3)

**GO 481-483. Independent Study.** Supervised individual study in a selected field of the geosciences. Prerequisite: Consent of department chairperson and supervising faculty member. (1-3)

**GO 491-493. Undergraduate Research.** Supervised individual research on a problem of inter-

est to the student. Prerequisite: Consent of department chairperson and supervising faculty member. (1-3)

**GO 555. (Cross-listed as AO 555) Soil Classification and Resource Management.** Classification of soils in terms of their physical, chemical, and mineralogical composition. Interpretation of soils in terms of proper land use, with special attention to soil erosion. Prerequisites: AO 215 or GO 110; CH 181/081/001 or CH 185/085/005. (3)

**GO 563. Advanced Topics in Geology.** Lectures, discussions, labs, field trips and assigned readings in various fields of geology. May be taken more than once. Topics vary. Prerequisite: Consent of instructor. (3)

**See University Studies (UD) listings for descriptions of:**

**UI 318. Earth Science: A Process Approach.** (3)

**UI 372. Earthquakes and Society.** (3)

**UI 373. Earth and Life Through Time.** (3)

**UI 416. Planetary Exploration: From Galileo to the Present and Beyond.** (3)

## **GERMAN (GN)**

**GN 001. German Exit Exam.** All majors are required to enroll in this non-credit-bearing exam during their senior year. At the time of the exam, students must present their portfolio containing documents they have been accumulating in their major throughout their undergraduate career. The course number GN 001 will appear on the Degree Audit. Prerequisite: Students must have completed all coursework in German or be in their last year of completing the coursework. (0)

**GN 100. German Language and Culture I.** Acquisition of an appreciation of the culture of German-speaking peoples and study of speaking, understanding, reading, and writing German. (University Studies course) (3)

**GN 120. German Language and Culture II.** Continued study of the culture of German-speaking peoples through the practice of speaking, understanding, reading, and writing German. Prerequisite: GN 100 or equivalent. (University Studies course) (3)

**GN 200. German Language and Culture III.** Continued study of German language and culture. Cultural, conversational and structural activities leading to increased proficiency and cross-cultural awareness. Prerequisite: GN 120 or equivalent. (University Studies course) (3)

**GN 220. German Literature.** Designed to develop the ability to read German literary texts; to acquaint students with major German authors; to introduce basic concepts of literary analysis; and to increase the ability

to speak and understand German through class discussions in German. Prerequisite: GN 200 or equivalent. (University Studies course) (3)

**GN 301. Intermediate German Composition.**

Designed to develop fluency in written composition. Prerequisite: GN 220. (3)

**GN 302. Experiencing German Language and Culture.** Sharing a residence hall (one semester) with an international, native German-speaking student. Prerequisites: Limited to non-native, German-speaking students concurrently enrolled in a German class (200-level or above) living with native German-speaking roommate in designated residence hall; cum. GPA 2.00 or better. (1)

**GN 305. Conversational German.** Designed to increase fluency and comprehension in the spoken language. Prerequisite: GN 220. (3)

**GN 310. Survey of German Literature I.** Overview of the major periods and authors of German literature from the Middle Ages to the mid 1700's. Prerequisite: GN 220. (3)

**GN 311. Survey of German Literature II.** Overview of the major periods and authors of German literature from the mid 1700's to the present. Prerequisite: GN 220. (3)

**GN 315. Commercial German.** Review of correct written expression, letter style, preparation of business transactions, and the economic structure of Germany. Prerequisite: GN 220. (3)

**GN 320. German Culture and Civilization.** Survey of the cultural background of German-speaking countries: Germany, Austria, and Switzerland. Prerequisite: GN 220. (3)

**GN 330. German Grammar.** Review of the elements of German grammar and study of the essential structures of the language. Prerequisite: GN 220. (3)

**GN 340. German Phonetics and Pronunciation.** Study of German vowel and consonant sounds, stress, rhythm, intonation; intensive practice in hearing and pronouncing the sounds of German. Prerequisite: GN 220. (3)

**GN 375. History of German Film.** A study of the history of German film from 1919 to the present, including the Weimar Republic, the Third Reich, Post War East and West Germany, and contemporary developments. Prerequisite: GN 220; consent of department. (3)

**GN 402. Independent Study in German.** Advanced-level study of language, culture, or literature for German majors. May be repeated once for credit. Prerequisites: GN 220; consent of department. (3)

**GN 424. Twentieth-Century German Literature.**

A study of German literature during the Weimar Republic, the Third Reich, the Post War Period and the late twentieth century. Prerequisite: GN220 or consent of instructor. (3)

**GN 440. Special Topics: German.** A course designed to permit flexibility. Topic will vary according to a list of 18 potential topics. May be repeated for credit. Prerequisite: GN 220. (3)

**GN 495. Foreign Language Internship in German.** Work experience using German in a professional setting in a business or agency. Prerequisite: Declared German major; Junior standing, with completion of a minimum of 24 credit hours in German; 2.50 GPA and 3.0 in German; a level of proficiency in German appropriate to the professional setting as evaluated by the departmental assessment procedures; approval of the Department of Foreign Languages and Anthropology. (3)

## HEALTH MANAGEMENT (HL)

**HL 111. Introduction to Health Management.**

Overview of job opportunities, professional organizations, and professional preparation in health management (athletic training, exercise science, and health promotion). (3)

**HL 113. Medical Terminology.** Analysis of root words, prefixes and suffixes for understanding medical language; origin, modern usage and abbreviations. (3)

**HL 116. (Cross-listed as PE, RC, SM 116) Special Topics in Health, Human Performance and Recreation.** Special topics in health and leisure unavailable in the department curriculum. May be repeated for credit on different topics. (1-3)

**HL 120. Health Perspectives.** An examination of world-wide health issues with emphasis on the impact that individual health behavior decisions have on personal, society, and world well-being. (University Studies course) (3)

**HL 210. Health and Safety.** The nine areas of health competencies with emphasis on personal health and safety. Required for K-12 certification. (2)

**HL 231. Fitness Conditioning.** Individualized approach to fitness/wellness concepts and their application. Emphasis on experiencing a directed exercise program. Two hours lecture, one hour lab. Prerequisite: Declared Health Management major. (3)

**HL 251. Introduction to Athletic Injuries.** Current methods in prevention, recognition, and management of physical activity and sport related injuries. (3)

**HL 260. Health Promotion Practicum.** Observation and limited participation as a para-professional in local health promotion programs. Six hours field work; one hour seminar per week. Prerequisites: HL 111; HL 120; sophomore standing; Health Management major or departmental minor. (3)

**HL 261. Exercise Science Practicum.** Observation and limited participation as a para-professional in local exercise science programs. Six hours field work, one hour seminar per week. Prerequisites: HL 111; HL 120; sophomore standing; Health Management major or departmental minor. (3)

**HL 263. Sports Injury Management.** Advanced study of prevention techniques, assessment and rehabilitation procedures, legal issues, and general medical conditions of the physically active. Prerequisite: Admission to ATEP; HL 251; HL 280. (3)

**HL 265. Therapeutic Modalities.** Exploration of the physical principles, physiological effects, indications, contraindications, safety precautions, operating procedures of therapeutic modalities. Three lectures and one 2-hour lab. Prerequisites: HL 282; HL 321; PH 106. (3)

**HL 280. Basic Skills in Athletic Training.** The study and observation of the treatment of athletic injuries under the guidance of physicians and/or National Athletic Trainers' Association certified athletic trainers. Prerequisites: Health Management major or consent of instructor. (1)

**HL 281. Practicum in Athletic Training I.** First of five supervised clinical experiences in the application of Athletic Training techniques. Prerequisite: Admission to ATEP; HL251; HL280. (1)

**HL 282. Practicum in Athletic Training II.** Assessment of emergency medical situations, orthopedic injuries of the lower extremity, and the thoracic and lumbar spine. Prerequisite: HL263; HL281. (1)

**HL 303. (Cross-listed as RC 303) Research Methods.** Overview of research methods in health and recreation with emphasis on research designs, instrument construction, and basic data management. Prerequisites: HL 111, or RC 140; Health Management or Recreation major. (3)

**HL 306. Aging and Exercise.** The role of exercise in the aging process. Emphasis placed on the over 60 generation. (3)

**HL 310. Health Instruction.** Materials and procedures for teaching health in the school system. The course contains an in-the-school component. Prerequisite: HL 120 or equivalent. (3)

**HL 312. Sport and Exercise Pharmacology.** The study of the basic principles of pharmacology, the

classification of drugs and their impact on a physically active population. Prerequisite: BS 113 or consent of instructor. (3)

**HL 316 (Cross-listed as RC, SM 316). Special Topics in Health, Human Performance and Recreation.** Special topics in health and leisure unavailable in the department curriculum. May be repeated for credit on different topics. (1-3)

**HL 320. Community Health.** A study of health issues and problems related to the community. Prerequisite: HL 120. (3)

**HL 321. Advanced Injury Assessment I.** Study of athletic injury assessment principles and techniques at the advanced level. Specific areas include assessment of emergency medical situations, orthopedic injuries of the lower extremity, abdomen/thorax, and the thoracic and lumbar spine. Prerequisites: HL 263, HL 281; Co-requisite: HL 282. (3)

**HL 322. Advanced Injury Assessment II.** Study of athletic injury assessment principles and techniques at the advanced level. Specific areas include assessment of emergency medical conditions, head injuries, and orthopedic injuries of the cervical spine and upper extremity. Prerequisites: HL 282; HL 321; Co-requisite: HL 383. (3)

**HL 323. Advanced Injury Assessment III.** Assessment of the head, neck, face, thorax, abdomen and thoracic and lumbar spine injuries in athletes and others engaged in physical activity. Prerequisites: HL 265; HL 322; HL 383. (3)

**HL 324. Group Exercise Instruction.** The methods and techniques used to teach a wide variety of group exercise classes. Pre- or corequisites: HL 331. (3)

**HL 331/031. Exercise Physiology.** Physiologic control of the human body during acute exercise, and adaptations to regular exercise stress. Emphasis on relationships among health, physical fitness, and exercise. Two hours lecture (HL 331), two hours lab (HL 031) must be taken concurrently. Prerequisites: BS 113/013; BS 114/014; CH 180 or CH 181/001/081; MA 134. Prerequisite or Co-requisite: HL 231. (3)

**HL 332. Lifestyle Disease Risk Reduction.** Overview of the principles of epidemiology and lifestyle disease pathophysiology. Examination of the use of epidemiologic research to identify risk factors for disease. Prerequisite: BS 113/013; BS 114/014; HL 260 or HL 261. (3)

**HL 345. Resistance Training Principles and Practices.** The scientific principles of resistance training and strength/power with emphasis on applications for improving health and performance. Prerequisite: HL 331. (3)

**HL 346. Weight Management Principles and Practices.** The scientific principles of weight management with an emphasis on lifestyle modification for improving health. Prerequisites: HL 331; HL 332; or consent of instructor. (3)

**HL 361-363. Independent Study in Health, Human Performance and Recreation.** Directed individual study of special interest areas in health and leisure. (1-3)

**HL 382. Medical Aspects of Sport.** Introduction to various medical conditions and disorders concerning allied health professionals in different areas of specialization. Prerequisites: BS 113; BS 114; or consent of instructor. (2)

**HL 383. Practicum in Athletic Training III.** Assessment of emergency medical situations, head injuries, and orthopedic injuries of the cervical spine and upper extremity. Prerequisite: HL 282; HL 321. (1)

**HL 384. Practicum in Athletic Training IV.** Fourth of five supervised clinical experiences in the application of Athletic Training technique. Prerequisite: HL 322; HL 323; HL 383. (1)

**HL 431. Fitness Assessment and Exercise Programming.** Methods used in assessing fitness and in developing exercise programs to achieve optimal health. Prerequisite: HL 331/031. (4)

**HL 432. Health Promotion Programs.** Exposure to the planning and implementation of health risk screenings and educational components of health promotion programs. Prerequisite: HL 332. (3)

**HL 444. Rehabilitation of Sports Injury.** Study of rehabilitation principles and techniques used to safely return a physically active individual to their sport/activity following injury. Prerequisite: HL 265; HL 322; HL 383; Co-requisite: HL 384. (3)

**HL 460. Exercise Leadership.** Exercise Science theory applied to conditioning programs. Emphasis on exercise conditioning program design for apparently healthy and special populations. Prerequisite: HL 431. (3)

**HL 471. Fitness Facility Administration.** Administrative considerations of fitness facilities. Standards and guidelines for facility planning and design, equipment, marketing, organization, and personnel considerations. Prerequisite: HL 331. (3)

**HL 472. Administration of Athletic Training.** Administrative components of athletic training programs. Facility design, supply ordering, budget and inventory, insurance, personnel, educational, pre-season physical examination considerations. Prerequisites: HL 384; HL 444. (2)

**HL 480. Seminar in Athletic Training.** A capstone course addressing current prevention, assessment, and rehabilitation of the most common conditions found in an athletic training environment. Prerequisites: HL 384; HL 444. (2)

**HL 481. Practicum in Athletic Training V.** Final supervised clinical experience. Focus includes the development, implementation, documentation of comprehensive injury/illness treatment plans including psychological, nutritional, pharmacological, and general medical considerations. Prerequisites: HL 265; HL 444. (1)

**HL 490. Program Planning and Evaluation.** Focus on planning, implementing and evaluating worksite health promotion programs. Prerequisite: HL 432. (3)

**HL 498. Health Internship.** Internship with approved professionals in selected Health Management programs. Experience in all phases of a Health Management agency operation. Prerequisites: Senior standing; completion of all degree requirements; 2.50 GPA in the major; 2.25 cumulative GPA; faculty advisor's approval. (12)

**HL 499. Athletic Training Internship.** Internship with certified athletic trainers and/or other allied health professionals in selected Sports Medicine programs. Prerequisites: HL 312; HL 384; 2.50 GPA in the major; 2.25 cumulative GPA; faculty advisor's approval. (6)

**HL 510. Health Concerns of Aging.** Health issues as they relate to the aging process. (3)

**HL 511. Applied Anatomy.** Location and action of skeletal muscles. Anatomy and biomechanical principles of movement as applied to rehabilitation, physical activity, and common anatomical injuries and disease. (3)

**HL 526. Health Behavior Change.** Behavior change theory, principles, predictive models, and their application to health behavior change programs and interventions. (3)

**HL 531. Advanced Exercise Testing.** Development of knowledge and skills necessary to conduct exercise tests in clinical settings. Two hours lecture; two hours lab. Prerequisites: HL 431 or consent of instructor. (3)

**See University Studies (UT) listings for descriptions of:**

**UI 354. Lifestyle Enhancement.** (3)

**UI 412. American Health Care Systems and Issues.** (3)

## **HISTORIC PRESERVATION (HP)**

### **HP 007. Professional Portfolio Review.**

Historic Preservation majors are required to have a professional portfolio review after completion of the Historic Preservation major requirements. See advisor for details. (0)

### **HP 100. Introduction to Historic Preservation.**

Survey of historic preservation in the U.S.; theory, philosophy, and methods of maintaining the culture of the past. (3)

### **HP 101-103. Topics in Historic Preservation.**

Examination of specialized topics or issues in historic preservation. (1-3)

**HP 200. Introduction to the Techniques of Local History.** Introduction to value, techniques and methods of local history for the preservationist. Prerequisite: HP 100 or consent of instructor. (3)

### **HP 300. Topics in Historic Preservation.**

Examination of selected topics or issues in Historic Preservation. (3)

**HP 391-393. Independent Study in Historic Preservation.** Directed individual study of special topics in historic preservation. (1-3)

**HP 405. Archives and Special Collections Management.** Theories, operational issues and their applications to the organization and administration of archives and special collections in public and private institutions. Prerequisite: HP 100 or consent of instructor. (3)

**HP 410. Museum Studies.** History, development, theory, and role of museums. Survey of methods, practices and types of museums to acquaint students with the profession. Prerequisite: HP 100 or consent of instructor. (3)

**HP 420. Historic Site Administration.** Study of the problems, techniques and administration of historic sites. Prerequisite: HP 100 or consent of the instructor. (3)

**HP 450. Problems in Historic Preservation.** Projects in historic preservation that acquaint the student with a broad spectrum of academic/practical problems that complement professional training. Prerequisite: HP 405 or HP 410 or HP 420; or consent of instructor. (3)

**HP 500-502. Historic Preservation Internship I, II, III.** Professional practicum requiring demonstration of Historic Preservation competency in appropriate settings under the direction of cooperating site administrators and a University coordinator. (3-9)

### **HP 540. Topics in Historic Preservation.**

Examination of specialized topics or issues in historic preservation. (3)

### **HP 552. Historic Preservation Field School.**

Intensive field experience in documenting and preserving the built environment and the historic landscape. (3)

**HP 580. History of American Building Materials and Techniques.** Survey of traditional construction materials and methods used in building and structures in the United States from the late sixteenth century to the recent past. (3)

**HP 585. History of American Architecture.** The study of architectural history as material evidence of America's social, cultural, economic, and technological development. Prerequisite: HP 200 or consent of instructor. (3)

**HP 588. Legal and Economic Principles of Historic Preservation.** A study of the legal and economic aspects in the procedures for locating, recording and preserving of America's historical, architectural and cultural resources. Prerequisite: HP 585 or consent of instructor. (3)

**HP 589. Historic Preservation Based Economic Revitalization.** Study of the role of historic preservation in the revitalization of America's historic downtowns. (3)

## **HISTORY, EUROPEAN (EH)**

**EH 101. Early European Civilization.** Survey of the history of Early European Civilization from its ancient beginnings to the post-Columbian era. (University Studies course) (3)

**EH 103. Modern European Civilization.** A survey of the history of European civilization from its inception in the Middle Ages to the contemporary period. (University Studies course) (3)

**EH 115. Ancient Greece and Rome.** A study of the development of ancient Greek and Roman Civilizations, their cultures, art, politics, and religious beliefs. (University Studies course) (3)

**EH 362. Medieval History.** From 476 to 1300. An examination of the rise and development of medieval Civilization from the late Classical Age to the time of Dante. (3)

**EH 364. Early Modern Europe.** Survey of political, social, economic, cultural and intellectual developments in Europe from 1450-1815. (3)

**EH 366. Age of the French Revolution and Napoleon: 1700-1815.** A study of Eighteenth Century European history with a special emphasis on the impact of the French Revolution and Napoleon. (3)

**EH 368. Nineteen Century Europe.** Provides a broad overview of the political, social, and economic

development of Europe from the end of the Napoleonic Wars to the outbreak of World War I. (3)

**EH 370. Europe in the Twentieth Century, 1914-Present.** Two world wars and their effects, the rise of totalitarian states, Europe's changed position in the world, and efforts at European cooperation. (3)

**EH 400. Topics in European History.** Study of selected topics in European History. (1-3)

**EH 412. Age of Rome.** History of Rome: Roman Republic and Empire. (3)

**EH 414. Tsarist Russia.** Survey of Russian history from earliest times to the end of the Nineteenth Century with special emphasis on Ivan the Terrible, Peter the Great and Catherine the Great. (3)

**EH 416. British History to 1688.** Survey of the development of English political, social and economic institutions to 1688. (3)

**EH 418. Modern Britain.** Survey of British history and institutions from 1689 to the contemporary era. (3)

**EH 514. History of Modern France.** Survey of France from 1789 to the present. (3)

**EH 516. History of Modern Germany.** Germany in the Nineteenth and Twentieth Centuries. (3)

**EH 518. History of Soviet Russia.** The 1917 revolution and analysis of the history and policies of the U.S.S.R. (3)

**EH 520. History of Spain and Portugal.** Survey of the history of Spain and Portugal from the Roman era to the present. (3)

**EH 527. Intellectual History of Europe.** Examination of intellectual and social history of Europe from the seventeenth century to the twentieth century. (3)

## **HISTORY, GENERAL (GH)**

**GH 007. BA Portfolio Review.** Assessment experience required of all Bachelor of Arts-History major. (0)

**GH 301-303. Independent Study.** Directed individual study of special topics in general history. (1-3)

**GH 315. Historiography.** Growth and development of historical writing, its methods and interpretations. (3)

**GH 415. Senior Seminar in History.** Capstone course for the Bachelor of Arts in History, focusing upon the methods and tools of the historian, culminating in a public presentation of a major paper. (3)

**GH 520. Techniques of Oral History.** Study and practice in designing and carrying out oral history projects. (3)

## **HISTORY, UNITED STATES (US)**

**US 105. American History I.** A study of the history of the United States from the colonial beginnings to 1877. (University Studies course) (3)

**US 107. American History II.** A study of the history of the United States from 1877 to the present. (University Studies course) (3)

**US 200. Topics in American History.** Study of selected topics in American history. (1)

**US 302. History of Missouri.** History of the state from earliest explorations to present. (3)

**US 350. Colonial America.** Colonial period through the American Revolution. (3)

**US 352. New American Republic 1789-1840.** Course examines significant political, social, and cultural developments in American civilization during the formative period from the ratification of the Constitution to the antebellum era and conflicting interpretations of those developments. (3)

**US 354. Civil War Era 1840-1896.** A study of America as influenced by the Civil War, expansion, and imperialists of the period 1840-1896. (3)

**US 356. Progressive America.** Economic, diplomatic, political, and cultural developments from 1877 to 1920. (3)

**US 358. Modern America, 1945-Present.** An analysis of American domestic and foreign policy, focusing on the role of the President since 1950. (3)

**US 360. Women in American History.** Study of American history from colonial times to present, from perspective of women. (3)

**US 365. (US 225) History of the Vietnam War.** A study of the Vietnam War, with emphasis upon American involvement, 1945-75. (3)

**US 370. (US 220) History of American Folklore.** Study of the history, development, sources and traditions of American folklore. (3)

**US 400. Topics in American History.** Study of selected topics in American history. (1-3)

**US 420. African American Slavery.** A study of Africans in America, both slave and free, from 1619 to 1865. (3)

**US 430. American South.** Survey of the economic, intellectual, political, and social development of the South from the colonial period to the present. (3)

**US 440. United States in World War II.** Survey of political, economic, military, social and cultural life in the United States between 1939 and 1945. (3)

**US 452. Cold War America.** Survey of American political, military, social, intellectual, and cultural life from 1945 to 1991. (3)

**US 460. The 1960's in America.** Examination of American political, military, social, intellectual and cultural life from roughly 1961 to 1974. (3)

**US 470. America in the 1970's.** Survey of American political, military, social intellectual and cultural life from 1968 to 1980. (3)

**US 507. Civil War Reconstruction.** Study of the social, economic, military and political aspects of the Civil War and Reconstruction periods of American history. (3)

**US 509. American West.** Survey of the economics, political, cultural, social, and intellectual development of the western region of the United States from the earliest American involvement to the present. (3)

**US 511. American Foreign Relations.** Examination of the history of American foreign relations from the founding of the nation to the present. (3)

**US 520. History of American Ideas.** Examination of patterns in American thought from the colonial period to the present. (3)

**US 522. American Presidential History.** An examination of the presidents and the Presidency in terms of personality, institutional evolution and achievements in foreign and domestic policy from 1789-present. (3)

**US 525. American Urban History.** Study of the origins, growth, and historical influence of American cities from the colonial town to the modern metropolis. (3)

**US 528. American Economic History.** Study of the economic development of the U.S. in its historical perspective. (3)

**US 529. History of American Labor.** Evolution of the American Labor movement to present. (3)

**US 531. American Military History.** Study of changing relationships between civil/military authority of warfare and its impact upon democratic institutions. (3)

## HISTORY, WORLD (WH)

**WH 105. World Civilizations.** Study of the historical development of the world's major non-Western civilization. (3)

**WH 100. African Civilization.** A study of the development of African civilizations from ancient times to the present. (University Studies course) (3)

**WH 110. Chinese Civilization.** A survey of the history of Chinese civilization from its inception in ancient times to the contemporary period. (University Studies course) (3)

**WH 125. Islamic Civilization.** A survey of the history of Islamic civilization from the time of Muhammad until the present. (University Studies course) (3)

**WH 130. Latin American Civilization.** A survey of Latin American civilization from PreColumbian times to the present with emphasis on the mixture of cultures and the struggle for modernity, including an examination of cultural, social, economic and political forces which have shaped Latin American Civilization. (University Studies course) (3)

**WH 200. Topics in World History.** Study of selected topics in world history. (1)

**WH 400. Topics in World History.** Study of selected topics in world history. (1-3)

**WH 410. Age of Greece.** Survey of ancient Greece from the Bronze Age through the period of Alexander the Great. (3)

**WH 430. History of China and Japan.** Study of the history and culture of China and Japan, with special emphasis on Western influence on those nations. (3)

**WH 440. Modern Middle East.** Investigation of the political, economic, social, religious, and cultural developments of the Middle East from Napoleon's invasion of Egypt in 1798 to the present. (3)

**WH 520. Latin American Colonial History.** Survey of the Iberian and Indian background to the voyages of discovery European conquest; establishment of imperial institutions, Bourbon reforms of the eighteenth century and the origins of independence. (3)

**WH 522. History of South America.** Survey of the development of the major nations of South America since independence with particular attention to revolutionary change and the evolution of democracy. (3)

**WH 524. History of Mexico.** Examination of modern Mexico from the wars of independence to the present with emphasis upon Santa Anna, Juarez, Maximilian, Porfirio Diaz, and the Mexican Republic. (3)

**WH 550. The Atlantic World.** The political, social, economic and cultural history of the Atlantic world from 1492 to 1830. (3)

**See University Studies (UI) listings for descriptions of:**

**IU 306. Perspectives on Urban Design.** (3)

**UI 304. The History and Culture of West Africa.** (3)

**UI 306. Film and History.** (3)

**UI 312. Perspectives on the Present.** (3)

**UI 313. The African-American Experience.** (3)

**UI 320. The Modern Presidency.** (3)

**UI 414. The American Temper: Ideas in Conflict.** (3)



**UI 418. European Mind.** (3)

**UI 446. Civil Rights Movement.** (3)

**UI 448. American Revolutionary Experience.**  
(3)

**UI 503. Age of Alexander the Great.** (3)

## **HORTICULTURE (HO)**

**HO 110. Introduction to Horticulture.** Explores horticulture as a dynamic blending of science, business and society that makes the world a better place to live. Two lectures; two-hour lab. (3)

**HO 130. Plant Identification and Use I.** Explores identification and cultural requirements of woody, ornamental plants. Two lectures; two-hour lab. (3)

**HO 230. Plant Identification and Use II.** The identification, nomenclature, classification, cultural requirements and landscape uses of ornamental trees, shrubs, vines, and herbaceous plants. An extension of HO 130. Two lectures; two-hour lab. Prerequisite: HO 130. (3)

**HO 310. Alternative Agriculture.** The role of the owner-operator in agriculture, with an emphasis on alternative agriculture. Two lectures; two-hour lab. (3)

**HO 320. Garden Center Management.** Principles and policies associated with a for-profit garden center enterprise. One-hour lecture; two two-hour labs. Prerequisite: HO 110. (3)

**HO 321. Advanced Plant Propagation.** Scientific theory and commercial practices of plant propagation by spore, seed, cuttings, layering, division, budding, grafting, micropropagation and specialized structures. Two hours lecture; one two-hour lab. Prerequisite: HO 110. (3)

**HO 330. Landscape Design.** Theory of landscape design. The selection and placement of plants and other structural objects in the design of landscapes for human use and enjoyment. One hour lecture; two two-hour labs. Prerequisite: HO 110. (3)

**HO 342. Production of Horticulture Crops.** Fundamental principles involved in the production of fruit, vegetable and nursery crops for wholesale or retail markets. Establishment, maintenance and marketing of commercial crops adapted to this area. Two lectures; two-hour lab. Prerequisite: HO 110. (3)

**HO 350. Greenhouse Management.** Location, types, covering, environmental controls, costs, greenhouse design, maintenance and use in growing plants, and cultural practices. Three lectures; two-hour lab. Prerequisite: HO 110. (4)

**HO 355. Interior Plantscaping.** Identification, selection, installation, maintenance and management

of plants used in interior environments. Two lectures; two-hour lab. (3)

**HO 430. Turfgrass Management.** Establishing and maintaining plantings on athletic fields, golf courses, parks, residential and commercial grounds. Two lectures; two-hour lab. Prerequisite: AO 120/020 or BO 200. (3)

**HO 431. Landscape Installation and Maintenance.** Explores establishing and maintaining landscapes. Two lectures; one two-hour lab. Prerequisites: HO 110; HO 130. (3)

**HO 464. Advanced Horticulture.** Explores hydroponics, tissue culture, nontraditional plant breeding, plasticulture, and advanced sports turf applications in horticultural systems. Two lectures; one two-hour lab. Prerequisites: HO 230; HO 342 or HO 350. (3)

**HO 530. Home Horticulture.** Horticulture as related to modern living. Designing and planting the home landscape including the fundamentals of establishing vegetable gardens, fruit orchards and vineyards. Plant identification, establishment and maintenance of ornamental trees, shrubs, vines, turfgrasses, ground covers and flowering plants. One hour lecture; two-hour lab. (2)

**See University Studies (UI) listings for description of:**

**UI 344. Plants and Humanity.** (3)

## **HUMAN ENVIRONMENTAL STUDIES (HE)**

**HE 310-312. Independent Study in Human Environmental Studies.** Directed individual study of problems and special topics in human environmental studies. (1-3)

**HE 317-320. Field Experience in Human Environmental Studies.** An intensive investigation or study of an individual system related to an area in human environmental studies on a selective basis. Prerequisite: 12 hours home economics courses. (1-4)

**HE 505-508. Problems in Family and Consumer Sciences Education.** Directed study of special problems in family and consumer sciences education through seminars, workshops, forums, etc. (1-4)

**HE 520. Techniques of Teaching Nutrition and Health Education.** Utilization of educational principles and theory for instructional planning, implementation, and evaluation for nutrition and health education. Prerequisites: FN 235 and/or FN 255. (3)

**HE 525. Evaluating Research in Human Services.** Emphasizes understanding and evaluating research studies: identifying, differentiating, analyzing,

and evaluating research components and processes. Prerequisite: introductory statistics course or consent of instructor. (3)

**See University Studies (UI) listings for description of:**

**UI 343. Transcultural Experience.** (3)

## **INDUSTRIAL EDUCATION (IE)**

**IE 105. Problems in Vocational and Industrial Education.** Study of topics to improve classroom effectiveness of in-service vocational trade and technical teachers. Prerequisites: IE 193 or IE 593. (3)

**IE 185. Fundamentals of Aeronautical Knowledge.** Theory of flight, dead reckoning and radio navigation, meteorology, radio phraseology, FFA regulations, use of flight computer and plotter. (3)

**IE 186. Primary Flight.** Flight instruction with local firm and/or flight simulator. Approximately 20 flight hours. (1)

**IE 188. Primary Flight.** See IE 186. Approximately 40 flight hours. (2)

**IE 190. Assessment for Career and Technical Education.** Study of the processes of collecting data for the purposes of making decisions about individuals, courses, and programs related to vocational education. (3)

**IE 192. Selection and Organization of Subject Matter.** Development and evaluation of courses of study, objectives, content selection and arrangement, and preparation of job and assignment sheets. (3)

**IE 193. Principles and Practices of Teaching Industrial Subjects.** Techniques of teaching vocational subjects and processes used to teach skills, including demonstrations, lectures, instruction sheets, and related audiovisual materials. (3)

**IE 194. Guidance in Career and Technical Education.** Study of the purposes, assumptions and problems of vocational guidance. Investigation of individual inventories, occupational choice, job placement and evaluation. (3)

**IE 195. Teaching Adults in Career and Technical Education.** Development of adult education; primarily the problems of and approaches used in interesting adults in continuing education. (3)

**IE 196. Foundations of Career and Technical Education.** Study of history, philosophy, definitions, certification, state plan, area vocational schools, state department evaluations, advisory committees, facilities, funding and administration. (3)

**IE 197. Coordination of Cooperative Education.** Organization and operation of cooperative programs,

including advisory committees, classroom development of training stations, methods of instruction and student organizations. (3)

**IE 301-303. Independent Study in Industrial Technology Education.** Investigation of concerns and studies not covered by scheduled classes. (1-3)

**IE 334. Historical Restoration Methods and Techniques.** Overview of historical restoration methods and techniques. Identification and research related to the tools, materials and methods of a particular historical period. (3)

**IE 335. Techniques of Historical Reconstruction.** Combined lecture/laboratory course where students restore portions of a structure or household items as originally made. (3)

**IE 401. Technology Education Management.** Study of the design, development and management of technology education facilities and related equipment. Prerequisite: Acceptance to Teacher Education. (3)

**IE 590. Assessment for Career and Technical Education.** Study of the processes of collecting data for the purposes of making decisions about individuals, courses, and programs related to career and technical education. (3)

**IE 592. Selection and Organization of Subject Matter.** Study of terminology and philosophy of industrial education, objectives, analysis for development and evaluation of courses of study. (3)

**IE 593. Principles and Practices of Technical Subjects.** A technical teacher training course designed to serve Trade, Technical and Health teachers. (3)

**IE 594. Guidance in Career and Technical Education.** Problems, methods, and procedure involved in assisting individuals to choose, prepare for, enter, and become adjusted in their vocations. For teachers, counselors and employment service personnel. (3)

**IE 595. Teaching Adults in Career and Technical Education.** Definition, importance, concepts, interests and abilities of adults, overcoming problem areas, methods of conducting classes, and role of the school system. (3)

**IE 596. Foundations of Career and Technical Education.** Introduction to foundations of career and technical education including history, philosophy, definitions, State Plan, and funding and federal acts. (3)

**IE 597. Coordination of Cooperative Education.** Organization and operation of cooperative programs, including advisory committees, classroom, development of training stations, methods of instruction and student organizations. (3)

## **INDUSTRIAL MANAGEMENT (IM)**

**IM 102. Technical Communication.** Practical aspects of preparing technical reports with emphasis on techniques of collecting and presenting technical and scientific data. Use of the microcomputer as it relates to preparing technical documents will also be covered. (3)

**IM 301. Industrial Safety Supervision.** Introduces the development and supervision of a hazard control program. Includes development of safety attitudes, detection/correction of unsafe work conditions and legislation. Prerequisite: IM 102. (3)

**IM 311. Statistical Process Control.** Data acquisition and analysis using quantitative techniques (sampling, probability, control charts, correlations, etc.) related to the management of quality assurance systems and/or quality improvement programs. Prerequisite: MA 134 or MA 135 with a grade of 'C' or better. (3)

**IM 313. Facilities Planning.** Design and applications of physical facilities for manufacturing and productions including material flow through the facility. Prerequisite: IM 315 or MN 304. (3)

**IM 315. Work Measurement.** Principles and practices of motion and time study including process charts, operation charts, motion summary, time standards, line balancing, work station redesign, and job evaluation. Prerequisite: IM 102. (3)

**IM 317-319. Cooperative Industrial Internship.** Provides on-job experiences in area industries. Students register junior year for senior-year internship. For one summer or one semester. (3)

**IM 411. Total Quality Assurance.** Examines the role(s) and application of quality concepts to modern industrial organizations. Topics include teamwork, continuous improvement, employee involvement, quality tools, ethics, and culture. Prerequisite: IM 102 and IM 311. (3)

**IM 417. Manufacturing Resource Analysis.** Prediction of costs involved in manufacturing processes and systems. Students learn how to create effective production and inventory control applications throughout all production phases. Material Requirement Planning (MRP) and inventory control are two main topics covered in course. Prerequisite: IM 311. (3)

**IM 419. Industrial Supervision.** Fundamental processes and techniques needed by front-line supervisors to provide leadership in the modern industrial enterprise. Topics include leadership, motivation, communication, problem-solving, decision-making, and labor relations. Prerequisite: IM 301. (3)

**IM 455. Sustainable and Green Manufacturing.** Examines the concept of "sustainable manufacturing; using green materials, methods and technologies that are energy efficient, sustainable and friendly to the environment. Topics include carbon footprint management, sustainable manufacturing process design, and life-cycle assessment for industrial processes. Prerequisite: ET 425. (3)

**IM 506. Projects in Industrial and Engineering Technology.** Study of special concerns using project management. (3)

## **INFORMATION SYSTEMS (IS)**

**IS 130. Visual Basic Programming I.** An introduction to the discipline of programming using the Visual Basic programming language in a Windows environment. Includes data types, control structures, arrays, functions and subroutines, properties, methods, menus and dialog boxes. Other topics as time permits. This course includes a lab component. Two hours lecture and two hours laboratory. Prerequisite: MA 134 or equivalent Logical Systems course with minimum grade of 'C' or high school equivalent. (3)

**IS 175. Information Systems I.** Concepts and applications of information systems for users of IS and prospective developers of IS. Topics include overview of concepts of IS, concepts and applications of spreadsheets, and an introduction to the Internet and to a markup language. Two hours lecture and two hours lab. Prerequisite: MA 134 with minimum grade of 'C' or high school equivalent. (3)

**IS 245. Web Development and Security.** Advanced web page programming used to develop professional and secure web pages. Topics include web page formatting and layout, and JavaScript code for manipulation of the Document Object Model (DOM). Browser/server interaction, directory management, evaluation of website impact on communication, understanding, and accessibility, along with website security is included. Prerequisite: IS 130 or CS 155 or CS 177 with a minimum grade of 'C'; or permission of instructor. (3)

**IS 275. Information Systems II.** Continuation of Information Systems I with emphasis on database concepts, software and applications, and a continued study of the Internet and a markup language. Two hours lecture and two hours lab. Prerequisites: IS 175 with minimum grade of 'C.' (3)

**IS 330. Visual Basic Programming II.** A continuation of IS 130. Topics include database access,

classes, internet applications, error handling, and active X controls. Prerequisites: IS 130; IS 175 or MI 375; with minimum grades of 'C'. (3)

**IS 445. Application Systems Analysis and Design.** Provides an in depth understanding of the principles and techniques used in the analysis and design aspects of developing application systems. Apply techniques and tools to produce the system artifacts pertaining to analysis and design. Prerequisite: Junior standing; CS 300 or IS 275 with a minimum grade of 'C'. Not available to Computer Science or Computer Information Systems majors. (3)

**IS 481-483. Problems in Information Systems.** (1-3)

**IS 575. Information Technology Management.** Covers strategic frameworks for IT deployment, trends in technology platforms and application portfolios, and tactics for providing reliable systems and efficient support service. Prerequisites: IS 275 with 'C' or better or upper division status; consent of instructor. (3)

## **INTERIOR DESIGN (DS)**

**DS 001. Portfolio Review.** Required for students to gain admission into the remaining Interior Design curriculum. Admission will be based on the quality of student work (professionalism, craftsmanship, creativity, and potential). Corequisite: DS 220. Prerequisites: DS 104; DS 111; CM 100 (0)

**DS 104. Introduction to Interior Design.** Surveys basic designs and philosophies used by design related disciplines. Examines fundamentals of color, space, form, furniture, and current trends. (3)

**DS 111. Design Process.** Studio course introducing basic design methods and creativity through 2-D and 3-D projects using a multidisciplinary approach to creative problem solving. (3)

**DS 114. Display Design.** Study of the components involved in the art of visual presentation. Students will participate in store display and technique within the community. (3)

**DS 205. History of Interiors I.** A study of furniture styles from ancient Mesopotamia through the Renaissance with emphasis on the economic and social issues that affect the development of design. (3)

**DS 206. History of Interiors II.** A study of furniture styles from the 17th century through the contemporary movement with emphasis on the impact of the economic, political, and social issues. (3)

**DS 211. Basic Kitchen and Bath Design.** Introduction to reading and producing working kitchen and bath documents according to the NKBA Graphic

and Presentation Standards. Prerequisites: DS 104; DS 111; DS 120. (3)

**DS 220. Design Communications.** Graphic presentation techniques emphasizing illustration of floor plan, elevation, plan oblique, and perspective drawings. Introduction to ink, marker, pencils, and watercolor media on typical illustration surfaces. Prerequisites: DA 104; DS 111; DS 120. Co-requisite: DS 001. (3)

**DS 311. Advanced Kitchen and Bath Design.** Advanced study and implementation of space planning techniques and graphic standards for the design of kitchens and bathrooms. Prerequisites: DS 001; DS 211; DS 220. (3)

**DS 320. Advanced Design Communications.** Advanced graphic communication techniques used throughout the design process. Drawing from experience, design process drawings, and design presentation. Emphasis on current digital tools and techniques. Prerequisites: CM 126; DS 220. (3)

**DS 330. Lighting and Electrical Systems.** Overview of light sources, luminaries and daylighting. Introduction to lighting calculations, reflected ceiling plans, electrical, data, voice and security systems. Prerequisite: DS 120. (3)

**DS 331. Interior Systems.** Study of building systems including the construction components, classifications, standards, physical properties of materials, typical building and interior construction systems, and mechanical systems. Prerequisite: DS 120. (3)

**DS 332. Materials and Cost Estimating.** A survey of interior materials and finishes utilized in commercial and residential interior design. Includes cost estimation techniques, regulations, codes, standards, and sustainable design. Prerequisite: DS 120. (3)

**DS 412. Design Studio 412.** Space planning of public areas including specialty spaces. Coverage of building codes, finish and furniture schedules and specifications, and completion of professional design projects. Required repeating for six total credit hours. Prerequisites: CM 126; DS 001; DS 211; DS 220. (3)

**DS 413. Design Studio 413.** Advanced studio course concentrating on built form and spatial relationships. Emphasis on design conceptualization and creativity communicated through two- and three-dimensional drawings and models. Required repeating for six total credit hours. Prerequisites: CM 126; DS 001; DS 211; DS 220. (3)

**DS 440. Internship in Interior Design.** A career-related work experience to gain valuable professional skills related to the learning objectives in the student's area of interest. Prerequisite: completion of 75 hours or consent of instructor. (4)

**DS 450. Professional Practice in Interior Design**

**I.** The study of the techniques and processes employed by the interior designer in the establishment of professional relationships and practices. Prerequisite: DS 412 or DS 413. (3)

**DS 451. Professional Practice in Interior Design**

**II.** Continuation of DS 450. The study of the techniques and processes employed by the interior designer in the establishment of professional relationships and practices. Prerequisite: DS 412 or DS 413. (3)

**DS 518. Environmental Design for Special Populations.** A study of the principles and theories relative to the design of effective environments for children, the elderly, and people with disabilities. (3)

**See University Studies (UI) listings for description of:**

**UI 340. Housing Perspectives.** (3)

**INTERNATIONAL EDUCATION (IN)****IN 510. Introduction to Comparative Education.**

An examination of schooling in different countries through contextual frameworks: philosophical and ideological; structural frameworks: social, cultural, economic, and political; and operational frameworks: pedagogical. (3)

**IN 520. Issues in Comparative and International Education.** A cross-national examination of various historical, political, economic, cultural, and social issues affecting education in selected countries throughout the world. Prerequisite: IN 510 or graduate standing. (3)

**IN 550. International Education Internship.**

Intensive professional internship experience requiring demonstration of culturally appropriate intercultural education competencies. Prerequisites: SE 275; UI 347; IN 510; IN 520; or graduate standing. (3)

**JAPANESE (JN)**

**JN 101. Japanese I.** Fundamentals of the Japanese sound system, grammar, and vocabulary. Reading and writing of the two syllabaries. Introduction to Japanese culture. (3)

**JN 102. Japanese II.** A continuation of Japanese I. The course expands on the grammar and vocabulary of the earlier course. Practice in reading the syllabaries and kanji. Prerequisite: JN 101. (3)

**LITERATURE (LI)**

**LI 001. Literature Portfolio.** Non-credit forum for undergraduate English-Literature option majors

to complete the portfolio requirement of that degree program. Students will finalize revisions of the documents they have been accumulating throughout their undergraduate careers. (0)

**LI 205. The Art of Film.** A study of the major artistic components of film and how those components are used to convey ideas or meanings. Prerequisite: EN 100. (University Studies course) (3)

**LI 220. Fiction and The Human Experience.** A study of short stories and novels by significant writers past and present. Prerequisite: EN 100. (University Studies course) (3)

**LI 221. Poetry and the Human Experience.** Focus on the elements of poetry and the techniques of interpretive reading in a survey of significant world poetry. Prerequisite: EN 100. (University Studies course) (3)

**LI 222. Mythic Dimensions of Literature.** A study of mythology and of literature with mythological themes. Prerequisite: EN 100. (University Studies course) (3)

**LI 243. Children's Literature.** Study of best forms of literature for children; development of criteria for judging children's books. Does not count for major or minor in English. Prerequisites: EN 100; EL 120 or CF 126. (University Studies course) (3)

**LI 250. World English Literature.** A survey of the world's literature written in English, with emphasis on analyzing and writing about literature. Prerequisite: EN 100. (University Studies course.) (3)

**LI 256. The Variety of Literature.** A survey of literature in all its variety-short stories, novels, poems and drama. Emphasis on reading, analyzing, and writing about literature. Prerequisite: EN 100. (University Studies course) (3)

**LI 260. English Literature I.** Beginnings-1798. Major English writing from Beowulf to the pre-Romantic period, with attention to form, historical consideration, contents and literary types. Prerequisite: EN 100. (3)

**LI 261. English Literature II.** 1798-present. Major English writings from the beginnings of the Romantic movement to present day, with attention to form, historical consideration, content and literary types. Prerequisite: EN 100. (3)

**LI 270. American Literature I.** Beginnings-1860. Important works of American writers. EN 100. (3)

**LI 271. American Literature II.** 1860-present. Important works of American writers. Prerequisite: EN 100. (3)

**LI 301. Small Press Publishing.** Advanced study in editorial and mechanical aspects of producing a literary or general interest magazine. Prerequisite: Consent of instructor. (3)

**LI 311. World Literature I.** Survey of significant literary voices from throughout the globe, including writers of fiction, poetry, and drama representing European, Asian, Middle Eastern, and African literary traditions. Begins with antiquity and ends around 1660. (3)

**LI 312. World Literature II.** Survey of significant literary voices from throughout the globe, including writers of fiction, poetry, and drama representing European, Asian, Middle Eastern, and African literary traditions. Begins around 1660 and continues to the present. (3)

**LI 320. African American Writers.** Studies fiction, poetry, drama, and nonfiction prose of major Black American writers of the past and present. For English and non-English majors. Prerequisites: EN 140; any 200-level literature course. (3)

**LI 345-347. Independent Study in English.** Study of topics not included in the basic curriculum. Prerequisites: EN 140; any 200-level literature course. (1-3)

**LI 385. Literature for the Secondary Classroom.** Investigation of successful application of literary theory in the secondary school through the use of multicultural literature, with emphasis on instructional practice that engages learners in critical response to all literary genres. Prerequisite: EN 201. (3)

**LI 421. Cross-Cultural American Voices.** Studies in fiction, poetry, drama, film and nonfiction written by African American, Native American, Hispanic, Asian American, Jewish, feminist, gay, and other diverse voices. Prerequisites: EN 140; any 200-level literature course (excluding LI 243). (3)

**LI 476. Early Twentieth-Century British Literature.** Representative fiction, poetry, and drama reflecting British and Irish literature. This course will focus primarily on modernist literature (1890's through the 1940's but will conclude with the mid-century's critique of modernism and with an exploration of how the modern is echoed in the postmodern). Prerequisites: EN 140 and any 200 level literature course. (3)

**LI 510. Literature and the Bible.** Study of literature based on Biblical parallels and archetypes. Includes novels, stories, poems, and plays. Prerequisites: EN 140; any 200-level literature course. (3)

**LI 542. Literature for the Young Adult.** Survey of literature written for young adults (grades 7-12) with emphasis on literary analysis and evaluation of literature and reading interests of young adults. Prerequisites: EN 140; any 200-level literature course. (3)

**LI 560. Chaucer.** Chief works of Chaucer and his time. Prerequisites: EN 140; any 200-level literature course. (3)

**LI 565. Southern Literature.** Writers of the American South from Colonial days to the present, with emphasis on Faulkner, O'Connor, Warren, Welty and Wright. Prerequisites: EN 140; any 200-level literature course. (3)

**LI 568. Nineteenth Century American Novel.** Beginnings to 1890. Includes Cooper, Hawthorne, Twain, Howells, and James. Prerequisites: EN 140; any 200-level literature course. (3)

**LI 570. Modern and Contemporary American Novel.** 1945-present. Includes Vonnegut, Roth, Barth, Tyler and Didion. Emphasis on techniques in fiction. Prerequisites: EN 140; any 200-level literature course. (3)

**LI 571. Contemporary American Poetry.** Emphasis on critical interpretation of contemporary poetry. Prerequisites: EN 140; any 200-level literature course. (3)

**LI 572. The Modern Essay.** A study of the informal or personal essay form; intensive reading of works by contemporary American and British essayists, and composition of original personal essays. Prerequisites: EN 140; any 200-level literature course. (3)

**LI 574. Australian Literature.** A historical survey of Australian literature, focusing on major themes and important issues in its development. Prerequisites: EN 140; any 200-level literature course. (3)

**LI 576. American Fiction of the 21st Century.** For students who wish to study the social and cultural junctures created by American cyberpunk fiction. Examines relationships between technology and power, technology and socially-constructed identity, and technology and Enlightenment theory, while suggesting possibilities for both agency and resistance. (3)

**LI 577. Studies in Early English Literature.** Focus on the study of early modern English literature from 1450-1785. Addresses issues, periods, or genre studies in the literature of England not addressed in the regular course listings. (3)

**LI 578. Later English Literature.** Studies in Romantic, Victorian, Modern, or Contemporary literature: issue, period, or genre studies in British literature not addressed in the regular course listings. Topics will be announced when course is offered. (3)

**LI 582. Topics in Literature.** Directed study of special topics in literature. Prerequisites: EN 140; any 200-level literature course; or consent of instructor. (3)

**LI 587. Women and Madness.** A thematic study of the madwoman in autobiography, literature, drama, and film. Various literary/cultural motifs of female

madness ranging from Greek drama to contemporary writings will be examined. (3)

See **University Studies (UI) listings for description of:**

**UI 306. Film and History.** (3)

**UI 326. Australian Culture.** (3)

**UI 341. Victorian Studies.** (3)

**UI 332. Images of Women in Literature.** (3)

**UI 431. Shakespeare's Tragedies and the Human Condition.** (3)

**UI 432. Shakespeare's History Plays and Comedies and the Human Condition.** (3)

**UI 435. Literature of Sport.** (3)

## **MANAGEMENT (MG)**

**MG 252. Business Communication.** Strategies and skills for effective writing and speaking in business organizations. Strongly recommend completion of AD 101. Prerequisite: EN 140 with a minimum grade of 'C'. (3)

**MG 301. Principles of Management.** This course will focus on the process of planning, organizing, leading and controlling the use of resources to accomplish performance goals. Prerequisite: completion of 45 hours. (3)

**MG 354. Business Negotiation: Concepts and Practice.** Skill development course designed to cultivate negotiation skills required in business settings and leadership positions. Prerequisite: MG 301 with a minimum grade of 'C'. (3)

**MG 356. Foundations of Human Resource Management.** Study of human resource management, including equal employment law, recruitment process, training and development, performance appraisals, and employee rights. Prerequisite: MG 301 with a minimum grade of 'C'. (3)

**MG 362. Management Skills.** Effective leadership and team performance in organizations. Attention given to personal, interpersonal, and team skills in current management practices. Prerequisite: MG 301 with a minimum grade of 'C'. (3)

**MG 456. Topics in Human Resource Management.** Seminar in contemporary personnel problems and issues, stressing the technical, analytical, legal and pragmatic approaches to personnel administration. Prerequisite: MG 356 with a minimum grade of 'C'. (3)

**MG 457. Organizational Behavior.** Readings/case analyses/seminar course designed to provide in-depth study of contemporary topics in organizational behavior

and implications for managerial action. Prerequisite: MG 301 with a minimum grade of 'C'. (3)

**MG 462. Organization Theory and Design.** Organizational purpose, design, structure, bureaucracy, power and politics; impact of external environmental and internal organizational factors on structure and design. Prerequisite: MG 301 with a minimum grade of 'C'. (3)

**MG 470. Leadership in Management.** An investigation of leadership in management and the behavior associated with various leadership styles. Prerequisite: MG 301 with a minimum grade of 'C'. (3)

**MG 471-473. Internship in Management.** Planned work/study designed to integrate cooperative practical real-world experience with academic preparation in the field of management. Prerequisites: 75 hours completed; 9 hours of MG prefix courses; Management major; overall GPA of 2.50; 2.75 GPA in management major courses; approval of internship agreement. Credit/no credit. (1-3)

**MG 481-483. Problems in Management.** Directed study of special problems in management through seminars, workshops, forums, etc. (1-3)

**MG 491-493. Independent Study in Management.** A study of an approved specific problem in management preferably one growing out of previous coursework or from business experience. (1-3)

**MG 526. Managing and Developing Talent.** Covers the human resource activities of performance management and training and development of talent. Emphasis placed on practice, applications and exercises. Prerequisite: MG 301 with a minimum grade of 'C'. (3)

**MG 546 (MG 446). Acquiring & Compensating Talent.** Covers the human resource activities of recruitment, selection and compensation of talent. Emphasis is placed on practice, applications, and exercises. Prerequisite: MG 356 with a minimum grade of 'C'. (3)

**MG 548. Project Management.** Project organization structure and staffing; conflict management; project planning and control; pricing and estimating; earned value analysis, proposal preparation; project information systems; international project management. Prerequisite: MG 301 with a minimum grade of 'C'. (3)

**MG 550. Improving Team Performance.** The course will investigate team performance and the skills and techniques required to improve team performance. Prerequisite: MG 301 with a minimum grade of 'C'. (3)

**MG 560. International Management.** Economic, cultural, political, and environmental variables of inter-

national management. Includes trends, organization for international operations, international management of human resources. Prerequisite: MG 301 with a minimum grade of 'C'. (3)

**MG 566. Legal and Union Issues in Human Resources.** Covers human resources topics of employment law and labor relations. Emphasis is placed on the impact of case law and union activity on organizations. Prerequisite: MG 356 with a minimum grade of 'C'. (3)

**See University Studies (UI) listings for description of:**

**IU 305. Entrepreneurship.** (3)

**UI 301. Managerial Communication Process.** (3)

## MANAGEMENT INFORMATION SYSTEMS (MI)

**MI 375. Management Information Systems.** Introduction to management information systems. Topics include executive information systems, management information systems, decision support systems, expert systems, teleprocessing systems. Pre or Co-requisite: MG 301 with minimum grade of 'C'. Prerequisites: Junior standing; AD 101 with minimum grade of 'C'. (3)

**MI 410. Business Database Systems.** Development of database applications for business. Topics include concepts, entity relationship modeling, normalization of database tables, query languages, database administration, relational and non-relational modes, distributed architectures. Prerequisite: MI 375 with a minimum grade of 'C'. (3)

**MI 420. Telecommunication Management.** This is an introductory course on the topic of data communications and networking concepts, components, architectures, protocols, and standards used for transmitting and receiving information within a network. Prerequisite: IS 130 and MI 375 with a minimum grade of 'C'. (3)

**MI 430. Knowledge-Based Decision Support Systems for Management.** Use of information systems technologies to support decision making. Topics include decision support systems, expert systems, and executive support systems. Prerequisite: MI 410 with a minimum grade of 'C'. (3)

**MI 439. Electronic Commerce.** Use of computer networks to conduct commercial activities of buying, selling, and/or exchanging of products, services, and information. Topics include electronic commerce (EC) tools, strategy and implementation. Prerequisite: IS

130, MI 375 and MK 301 with a minimum grade of 'C'. (3)

**MI 440. Web Design for Electronic Commerce.** Course focus is on developing a World Wide Web presence using Web-centered technologies. Topics include XHTML, security, scripting languages, database connectivity. Prerequisite: MI 375 or TN 375 with a minimum grade of 'C'. (3)

**MI 445. Systems Analysis and Design.** Study of a systematic on-going process of systems analysis, systems design, system implementation, systems maintenance and systems security management. Prerequisite: IS 130 or MI 410 or MN 260 with a minimum grade of 'C'. (3)

**MI 464. Systems Implementation and Practice.** A capstone field-experience course that builds on systems analysis and design methodologies for the design and implementation of computer-based information systems. Special emphasis is placed on modern tools and techniques for rapid systems development. Prerequisite: MI 445 with a minimum grade of 'C'. (3)

**MI 471-473. Internship in Management Information Systems.** Supervised learning and work experience designed to integrate cooperative practical real-world experience with academic preparation in the field of Management Information Systems. Prerequisites: 75 hours completed with a minimum cumulative GPA of 2.75; 9 hours of MI prefix courses with a GPA of 3.0 in MIS courses; approval of internship coordinator. Credit/no credit. (1-3)

**MI 575. Information Technology Management.** Major focus is business alignment with technology as pertaining to strategic frameworks for IT deployment in an organization. The course is of applied nature, with discussions on industry practices. Prerequisite: MI 375 or IS 275 with minimum grade of 'C'; senior standing. (3)

## MANUFACTURING ENGINEERING TECHNOLOGY (MN)

**MN 120. Fundamentals of Engineering Design Processes.** Use of conventional and computer-aided drafting techniques, electronic hardware and systems to solve problems in Engineering Graphics. Orthographic projection, sketching, lettering, dimensioning, section views, geometric constructions and auxiliary views will be covered. (3)

**MN 170. Engineering Materials and Testing.** This course provides a comprehensive introduction to the basic science of materials engineering. Course topics



include: alloying of metals; plain carbon steels and cast irons, and heat treatment; polymeric materials; and both destructive and non-destructive testing. Prerequisites: CH 181; MA 134 or MA 135. (3)

**MN 203. Industrial Materials and Processes I.**

The study of modern manufacturing processes used to convert metallic materials into products. Topics include metal removal, tooling, tool geometry, forming, and surface quality. Prerequisite: MN 170; MN 120. (3)

**MN 219. Statics and Strengths of Materials.**

Investigates principles of forces, moments, resultants and static equilibrium of force systems, center of gravity, friction, and free body diagram analysis with practical laboratories. Prerequisites: MA 139 or MA 140; MN 170; PH 120. (3)

**MN 220. Engineering Economic Analysis.**

Engineering economy topics include the effects of the time-value of money, concepts of equivalence, replacement analysis, cost/benefit analysis, tax consequences and cost of capital depreciation related to a manufacturing or engineering environment. Prerequisite: MA 134 or MA 135 with a grade of 'C' or better. (University Studies course) (3)

**MN 221. Solid Modeling and Rapid Prototyping.**

Use of advanced computer aided design and drafting software, hardware, and systems to produce three dimensional drawings, renderings and actual physical prototypes of parts and assemblies. Prerequisites: MN 120; MA 134 or MA 135. (3)

**MN 260. Technical Computer Programming Applications.** This course will focus on high level programming languages and their applications in industrial technology. Prerequisite: MA 134 or MA 135. (3)

**MN 304. (MN 204) Industrial Materials and Processes II.** Continuing study of modern manufacturing processes used to convert metallic materials into products. Topics cover metal forming processes, tolerancing and finishing processes, computer numerical control (CNC) programming and CNC milling machine operation, electrical-discharge machine (EDM), and coordinate measuring machine (CMM). Prerequisite: MN 203. (3)

**MN 324. Mechanical Design Processes.** Machine kinematic analysis and synthesis used for design of mechanical systems to produce desired motions. Prerequisites: MN 221; PH 120. (3)

**MN 325. Print Reading for Industry.** Industrial drawings, pictorial sketching, symbols, geometric dimensioning, tolerancing, surface finishes, threads, fasteners, gears, sectional views, tooling and cams. Prerequisite: MN 120. (3)

**MN 350. Machine Design.** Principle concepts and practices in machine design, with emphasis on analyzing and synthesizing components into mechanical systems and computer based machine design process. Prerequisites: MN 204; MN 324. (3)

**MN 354. Computer Aided Manufacturing (CAM).** The study of computer numerical control (CNC) and laboratory projects utilizing mill, lathe, electrical-discharge machine (EDM), coordinate measuring machine (CMM), and reverse engineering technology. Prerequisites: MN 204; MN 350. (3)

**MN 356. Robotic Fundamentals.** An introduction to robotic fundamentals with emphasis on terminology, classification, sensors, socio-economic implications, safety, applications and programming methods. Prerequisites: ET 194; MA 140; MN 260. (3)

**MN 381. Power Transmission.** Theory of energy sources, power-producing machines, and power transmission methods. Applications of power systems. Prerequisite: MN 204. (3)

**MN 383. Fluid Power.** Investigates hydraulic and pneumatic systems as a means of transmitting and controlling power; includes identification of components and symbols, hydraulic system analysis and laboratory applications for fluids and gases. Prerequisite: MA 139 or MA 140; PH 120. (3)

**MN 402. Plastics and Processes.** This course encompasses the study of chemical/physical properties of plastic materials, manufacturing processes, and mold design. Prerequisites: MA 145 or MA 144; MN 354. (3)

**MN 412. Advanced Manufacturing Systems.** Provides students an opportunity to study the integration of robots, CNC, CAD/CAM, databases and automated systems into the manufacturing environment. Prerequisites: MN 356; MN 402; PH 121. (3)

**MN 416. Manufacturing Seminar.** An advanced level course involving all of the students' previous courses in an interdisciplinary format to solve common problems. Prerequisite: senior status. (1)

**See University Studies (UI) listings for description of:**

**UI 319. Science, Technology and Society.** (3)

**UI 410. Manufacturing Research in a Global Society.** (3)

## **MARKETING (MK)**

**MK 301. Principles of Marketing.** A managerial approach to marketing focusing on matching organizational goals with customers needs in an ethical and socially responsible manner. Prerequisite: completion of 45 hours. (3)

**MK 341. Public Relations.** Basic principles of and the role of public relations in the strategy and marketing mix of profit and nonprofit organizations. Prerequisite: MK 301 with minimum grade of 'C.' (3)

**MK 342. Professional Selling.** Philosophies and techniques of relating products and services to the customers' wants and needs in a mutually satisfactory manner. Prerequisite: MK 301 with minimum grade of 'C.' (3)

**MK 343. Advertising and Promotion.** The role of advertising and promotion in the marketing process, from the business manager's point of view. Prerequisite: MK 301 with minimum grade of 'C.' (3)

**MK 344. Consumer Behavior.** Development of a framework within which to review the psychological, social, economic, demographic, environmental and marketing influences on consumer behavior. Prerequisite: MK 301 with minimum grade of 'C.' (3)

**MK 345. Introduction to Business Research.** This course deals with theories, concepts and methodology applicable in analyzing marketing and other business problems. Prerequisites: MK 301 with minimum grade of 'C'; QM 257. (3)

**MK 346. Distribution Management.** A study of the institutions and functions of channels of distribution and the physical movement of products to the consumer. Prerequisite: MK 301 with minimum grade of 'C.' (3)

**MK 347. Transportation.** Examines the various models of transportation available to distribute goods. Prerequisite: MK 301 with minimum grade of 'C.' (3)

**MK 348. Product and Pricing Strategy.** An examination of the new product development process and product management including an analysis of pricing practices and strategies. Prerequisite: MK 301 with minimum grade of 'C.' (3)

**MK 349. Retail Management.** Organization, management and operation of and strategy development for retail institutions. Prerequisite: MK 301 with minimum grade of 'C.' (3)

**MK 351. Sports Marketing.** This course will introduce students to the unique nature of sports marketing at both the professional and amateur levels. Prerequisite: MK 301 with a minimum grade of 'C.' (3)

**MK 443. Integrated Marketing Communications Practicum.** The development of integrated marketing communication strategies with major emphasis being placed on advertising; primarily an application course where students develop a promotion campaign for an existing business/organization. Prerequisite: MK 343 with a minimum grade of 'C.' (3)

**MK 447. Sales Management.** Human relations aspect of organizing and managing an outside sales

force, sales analysis, planning and control. Prerequisite: MK 301 with a minimum grade of 'C.' (3)

**MK 449. Marketing Management.** An advanced review of the overall marketing process with emphasis on decision-making and strategy development. Prerequisite: 15 hours in marketing (MK) courses. Open only for marketing majors. (3)

**MK 471-473. Marketing Internship.** Training and work experience in some area of marketing under an approved field supervisor and an approved work/study plan. The student's grade will be on a credit/no credit basis. Prerequisite: 75 hours completed; 9 hours of MK prefix courses; Marketing major; overall GPA of 2.50; 2.75 GPA in marketing courses; approval of internship agreement. Credit/no credit. (1-3)

**MK 478. Global Logistics.** Study of logistics functions that involve sourcing, production, distribution, and marketing of products and services in the global marketplace. Prerequisite: MG 301; MK 301. (3)

**MK 483. Practicum in Strategic Marketing.** A supervised field experience in an area of marketing, such as advertising, product development, retailing, personal selling, or marketing research. Prerequisites: Nine hours MK courses; Marketing major; consent of instructor. (3)

**MK 491-493. Independent Study in Marketing.** Intensive study of special problems related to marketing practice. Prerequisite: Consent of the department (1-3)

**MK 555. Internet Marketing.** An introduction to the Internet as a part of a company's marketing strategy. Students will explore Internet consumer characteristics and behavior and their effect on web content. Prerequisites: AD 101; MK 301 with minimum grade of 'C.' (3)

**MK 560. International Marketing.** The marketing environments throughout the world and the management of the marketing function on a global scale. Prerequisite: MK 301 with minimum grade of 'C.' (3)

**See University Studies (UI) listings for description of:**

**UI 351. Public Opinion Management.** (3)

**UI 359. Consumers: Buying/Having/Being.** (3)

**UI 400. Business and Ethics.** (3)

## **MASS COMMUNICATION (MC)**

**MC 001. Exit Interview.** Assessment activity completed during the final semester of coursework. (0)

**MC 101. Mass Communication and Society.** An examination of the diversity of the American mass

media and its use by the audience. (University Studies course) (3)

**MC 141. Introduction to Radio.** Principles of radio broadcasting and regulations applying to the operation of a low-power FM (LPFM) radio station. (1)

**MC 201. Writing for the Mass Media.** An introduction to the process of making news judgment and the practical application of writing techniques used in the mass media. Prerequisites: EN 100 or EN 140 with a grade of 'C' or better; completion of 15 credit hours. (3)

**MC 220. Newspaper Staff.** Provides practical experience working on the student newspaper. May be repeated for a maximum of 6 credits. Prerequisites: MC 201 with a grade of 'C' or better; completion of 15 credit hours; or permission of newspaper advisor. Credit/no credit course. (1)

**MC 240. Radio Station Activity.** Course is devoted to practical radio broadcasting experiences. Students will conduct airshifts at KDMC, the radio station laboratory. May be repeated for up to 3 hours of credit. Prerequisites: MC 101 and MC 141 with a grade of 'C' or better; completion of 15 credit hours. (1-3)

**MC 301. Mass Communication Theory and Research.** A study of research techniques commonly utilized in the mass media with a broad overview of mass communication theory. Prerequisites: MA 155 and MC 101 with a grade of 'C' or better; completion of 45 hours; full admission to the Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 304. Diversity in Communication.** Examination of the roles, impact, portrayals, perceptions, contributions and challenges of minorities in mass media content and media professions. Prerequisites: MC 101 with a grade of 'C' or better; completion of 45 hours. (3)

**MC 310. Advertising Communication Strategies.** A survey of advertising principles and practices, stressing creative, communicative and managerial aspects. Prerequisites: MC 101 and MC 201 with a grade of 'C' or better; completion of 45 hours. (3)

**MC 312. Advertising Creative Concepts.** Principles and techniques of producing advertising for print and electronic media. Prerequisites: MC 310 with a grade of 'C' or better; completion of 45 hours. (3)

**MC 314. Advertising Social Issues and Responsibilities.** Study of the complex relationship between advertising content and placement with other facets of society. Prerequisites: MC 312 with a grade of 'C' or better; completion of 45 hours; full admission

to the Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 316. Advertising Media.** Study of advertising placement in media with emphasis on comparison, rating, target audiences, cost efficiency, and effectiveness. Prerequisites: MC 312 with a grade of 'C' or better; completion of 45 hours; full admission to the Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 320. Basic Journalism.** A study of daily and weekly newspaper reporting and newsroom operating methods. Prerequisites: MC 201 with a grade of 'C' or better; completion of 45 hours. (3)

**MC 322. Publication Editing and Production.** Principles and practices in the editing of copy and photographs, writing headlines, and designing newspaper and magazine pages. Prerequisites: MC 201 with a grade of 'C' or better; completion of 45 hours. (3)

**MC 324. Magazine and Feature Writing.** A study of newspaper and magazine features together with practice in writing nonfiction articles for publications of general, professional or trade interest. Prerequisites: MC 320 with a grade of 'C' or better; completion of 45 hours with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 330. Public Relations Principles.** An introduction to the modern public relations function emphasizing its tools, processes, publics, communication methods and professional ethics. Prerequisites: MC 101 with a grade of 'C' or better; completion of 45 hours. (3)

**MC 332. Public Relations Writing and Design.** Creative composition of effective writing and design for print and electronic public relations communications. Prerequisites: MC 201 and MC 330 with a grade of 'C' or better; completion of 45 hours. (3)

**MC 334. Public Relations Research and Strategy.** Constructing and conducting research studies, identifying public relations problems/opportunities and objectives, and applying research findings to the composition of effective strategic communications. Prerequisites: MC 301 and MC 332 with a grade of 'C' or better; completion of 45 hours; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 340. Basic Radio.** Historical and contemporary radio broadcasting as technology and business, including its relationship to government and society. Prerequisites: MC 141 (can be taken concurrently) with a grade of 'C' or better; completion of 45 hours. (2)

**MC 342. Radio Programming Strategies.** A study of the responsibilities of the persons involved in radio

programming with emphasis on formats and delivery. Prerequisites: MC 101 and MC 340 with a grade of 'C' or better; completion of 45 hours. (3)

**MC 344. Audio Production and Performance.**

Experience oriented course integrating vocal delivery techniques with concepts of program preparation and presentation. Prerequisites: MC 340 with a grade of 'C' or better; completion of 45 hours; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 346. Electronic News Gathering.** A study of the techniques of gathering, writing, and producing news stories for radio and television broadcast. Prerequisites: MC 201 with a grade of 'C' or better; completion of 45 hours; full admission to the Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 351. Basic Video and Film Production.** An introduction to the principles of video and film production, with emphasis on multi-camera production, basic field techniques and linear editing. Lab and production work required. Prerequisites: MC 101 with grade of "C" or better; 45 hours completed. (3)

**MC 352. Intermediate Video and Film Production.** A continuation of Basic Video and Film Production, with emphasis on single-camera production, intermediate field techniques, and non-linear editing. Lab and production work required. Prerequisites: MC 201 and MC 351 with grade of "C" or better; 45 hours completed. (3)

**MC 353. Film History.** An examination of the artistic and social impact of the cinema, from its beginnings in the late 19th century to the present. Prerequisites: EN 140 with a grade of "C" or better; 45 hours completed. (3)

**MC 354. Screenwriting.** An introduction to the principles of cinematic storytelling, with emphasis on the creation of motion picture screenplays. Prerequisites: EN 140 with grade of "C" or better; 45 hours completed. (3)

**MC 367. Converging Media Systems.** This course defines media convergence and the impact that the digital realm will have on all aspects of telecommunication. Lab and production work required. Prerequisites: MC 352 with grade of "C" or better; 45 hours completed; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 371. Broadcast Field Techniques.** An introduction to the art of visual storytelling in broadcast field production and reporting. Prerequisites: MC 352 with grade of "C" or better; 45 hours completed; full

admission to the Mass Communication program with a minimum of 2.50 GPA in MC-prefix courses. (3)

**MC 372. Broadcast Reporting.** A comprehensive course of writing, editing, and on-camera broadcast news reporting. Prerequisites: MC 201 and MC 352 with grade of "C" or better; 45 hours completed; full admission to the Mass Communication program with a minimum of 2.50 GPA in MC-prefix courses. (3)

**MC 401. Communication Law.** Introduction to law as it pertains to the mass media. Prerequisites: completion of 75 hours including 15 MC-prefix hours; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 402. Seminar in Mass Communication.** A capstone study of the relationship between the media and other facets of society brought on by technology, ownership, and personal privacy. Prerequisites: MC 301 with a grade of 'C' or better; admission to Mass Communication program; senior standing. (1)

**MC 418. Advertising Campaigns.** Application of advertising principles and techniques in working with a professional client to prepare and execute an advertising campaign. Prerequisites: MC 301, MC 314 and MC 316 with a grade of 'C' or better; completion of 75 hours including 15 MC-prefix hours; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 425. Public Affairs Reporting.** Study of the reporting techniques used in covering courts, government agencies, public interest organizations, and economics. Prerequisites: MC 320 with a grade of 'C' or better; completion of 75 hours including 15 MC-prefix hours; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 426. Sportswriting.** Theory and practice in the techniques of sportswriting for print and broadcast media. Prerequisites: MC 320 with a grade of 'C' or better; completion of 75 hours including 15 MC-prefix hours; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 427. Specialized Reporting.** Study of the techniques, principles, language and legal issues of the reporting specialties. Categories/themes will be offered through the year in response to student interest and market trends. May be repeated for credit. Prerequisites: MC 320 with a grade of 'C' or better; completion of 75 hours including 15 MC-prefix hours; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 428. Editorial Page.** An examination of problems, content, selection and writing of opinion for

newspaper and an introduction to editorial page design. Prerequisites: MC 320 with a grade of 'C' or better; completion of 75 hours including 15 MC-prefix hours; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 429. Advanced Journalism.** Advances students' reporting skills through their work as online and print reporters, photojournalists, researchers, copy editors, operations staff and newsroom leaders on the weekly student newspaper. Prerequisites: MC 301, MC 322, MC 324 with a grade of 'C' or better; completion of 75 hours including 15 MC-prefix hours; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 430. Strategic Communication Issues.** Course is designed to provide in-depth experiential learning in specific career fields in communication and specific career skills areas within these fields. May be repeated for up to 9 hours of credit. Prerequisites: completion of 75 hours including 15 MC-prefix hours; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (1-3)

**MC 434. Public Relations Campaigns.** Planning and analysis of actual and proposed campaigns to solve public relations problems through agencies, not-for-profit organizations, corporations, retail firms, trade associations, government and political clients and employers. Prerequisites: MC 334 with a grade of 'C' or better; completion of 75 hours including 15 hours of MC-prefix courses; full admission to the Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 448. Radio Station Administration.** Administering contemporary commercial and non-commercial radio. Prerequisites: MC 344 and MC 346 with a grade of 'C' or better; full admission to the Mass Communication program; 75 hours completed including 15 hours of MC-prefix courses with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 451. Film Directing.** Theory and practice of narrative film directing, with emphasis on script analysis, working with actors, and the production of a short film. Lab and production work required. Prerequisites: MC 352 and MC 353 with a grade of C or better; completion of 75 hours including 15 MC-prefix hours; full admission to the Mass Communication program with a minimum of 2.50 GPA in MC-prefix courses. (3)

**MC 466. Television Directing.** The theory and practice of directing for television. Emphasis on visualization, pre-production and post-production procedures. Prerequisite: MC 352 with grade of "C" or better;

completion of 75 hours including 15 MC-prefix hours; full admission to the Mass Communication program with a minimum of 2.50 GPA in MC-prefix courses. (3)

**MC 469. (MC 361) Advanced Video Production.** Application of video techniques while working with a professional client to prepare and execute all pre-production phases of a corporate television project. Lab and production work required. Prerequisites: MC 301, MC 367, MC 466 with grades of 'C' or better; 45 hours completed; full admission to the Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 471. Broadcast News Production.** The application of broadcast news techniques in a live and live-on-tape studio setting where students will produce, write, and report news. Prerequisites: MC 371 and MC 372 with grade of "C" or better; completion of 75 hours including 15 MC-prefix hours; full admission to Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (3)

**MC 482. Special Problems.** Seminar designed for in-depth study and research of a specific aspect of mass communication. Content varies. Prerequisites: Consent of department chairperson; full admission to the Mass Communication program; 75 hours completed including 15 hours of MC-prefix courses; full admission to the Mass Communication program with a minimum 2.50 GPA in MC-prefix courses. (1)

**MC 483-485. Independent Study in Mass Communication.** Topical study beyond content of course offerings. For majors only. Prerequisites: Grade of 'C' or better in all major courses completed; consent of department chairperson; completion of 75 hours including 15 hours of MC-prefix course; full admission to the Mass Communication program with a minimum of 2.50 GPA in MC-prefix courses. (1-3)

**MC 486. Internship in Mass Communication.** Practical involvement in an appropriate professional organization. Prerequisites: 75 hours including 12 option hours; grade of 'C' or better in all major courses completed; 2.5 cumulative GPA; 2.75 Mass Communication major GPA; consent of department chairperson; full admission to the Mass Communication program. (3)

**MC 496. Practicum in Mass Communication.** A course devoted to practical media experiences. Prerequisites: 75 hours completed including 12 option hours; grade of 'C' or better in all major courses completed; 2.50 cumulative GPA; 2.50 GPA in MC-prefix courses; consent of department chairperson; full admission to the Mass Communication program. (3)

See University Studies (UD) listing for description of:

**UI 382 History and Philosophy of American Mass Media (3)**

## **MATHEMATICS (MA)**

### **MA 003. Math Major Field Achievement Test.**

Required of all Mathematics majors (Pure, Applied Mathematics and Statistics, and Secondary Education). Prerequisite: Major in Mathematics; 90 credit hours. (0)

**MA 101. Beginning Algebra.** Polynomials, factoring, equations and inequalities in one and two variables, rational expressions, rational exponents, quadratic equations, and systems of linear equations. Course grade: CR or F. Prerequisite: ACT Mathematics score 20 or below. (3)

**MA 102. Intermediate Algebra.** Polynomials, factoring, equations and inequalities in one and two variables, rational expressions, rational exponents, quadratic equations, and systems of linear equations. Course grade: CR or F. Prerequisite: Grade of CR for MA101. (3)

**MA 118. Mathematics I.** Introduction to problem solving strategies, sets, whole numbers and their operations and properties, number theory, numeration systems, computer usage, and the historical significance and applications of these topics in the K-9 mathematics curriculum. Prerequisite: MA 102 with a grade of CR or MA 095 with a grade of 'C' or higher or ACT Math score of 18-20 with MA 095 placement score of 14 or higher, or ACT Math score of 21 or higher. Declared education major in elementary, early childhood, exceptional child, middle school, or secondary mathematics or human environmental studies: child development option major. (University Studies course) (3)

**MA 123. Survey of Mathematics.** A sampling of topics which mixes mathematics history, its mathematicians, and its problems with a variety of real-life applications. Prerequisite: MA 102 with a grade of CR or MA 095 with a grade of 'C' or higher, or ACT Math score of 18-20 with MA 095 placement score of 14 or higher or ACT Math score of 21 or higher. (University Studies course) (3)

**MA 133. Plane Trigonometry.** Circular functions, right and oblique triangles, identities and equations, complex numbers. Prerequisites: MA 102 with a grade of CR or MA 095 with a grade of 'C' or higher or ACT Math score of 18-20 with MA 095 placement score of 14 or higher or ACT Math score of 21 or higher. (3)

**MA 134. College Algebra.** Functions and graphs, polynomial and rational functions, exponential and

logarithmic functions, and sequences. Prerequisite: MA 102 with a grade of CR or MA 095 with a grade of 'C' or higher or ACT Math score of 18-20 with MA 095 placement score of 14 or higher or ACT Math score of 21 or higher. (University Studies course) (3)

**MA 135. Precalculus.** Integrated course of College Algebra and Plane Trigonometry. Credit may not be received for MA 133 or MA 134 and MA 135. Prerequisite: MA 102 with a grade of CR or MA 095 with a grade of 'C' or higher or ACT Math score of 18-20 with MA 095 placement score of 14 or higher or ACT Math score of 21 or higher. (5)

**MA 138. Discrete Mathematics I.** Applied mathematics course emphasizing fundamental principles of discrete mathematics and applications to computer science. Topics include logic, mathematical induction, sets, relations, functions, algorithms, permutations and combinations, and graph theory. Prerequisite: MA 134 with a grade of 'C' or higher. (3)

**MA 139. Applied Calculus.** For students in business, social or life sciences. Functions, limits, differentiation and integration of elementary functions. Emphasizes applications. Prerequisites: MA 134 with a grade of 'C' or higher. (3)

**MA 140. Analytic Geometry and Calculus I.** Analytic geometry, functions, limits, derivatives and integrals of algebraic, trigonometric, and exponential functions with applications. Prerequisites: MA 133 with a grade of 'C' or higher and MA 134 with a grade of 'C' or higher, or MA 135 with a grade of 'C' or higher. (5)

**MA 144. Integral Calculus and Differential Equations.** Applications and techniques of integration, parametric equations, polar coordinates, techniques of solving ordinary differential equations, applications, numerical methods, and Laplace transforms. Prerequisites: MA 140 with a grade of 'C' or higher. (5)

**MA 145. Analytic Geometry and Calculus II.** Differentiation and integration of transcendental functions, series, conic sections, polar coordinates. Prerequisite: MA 140 with a grade of 'C' or higher. (4)

**MA 155. Statistical Reasoning.** Course will introduce statistical ideas to students. The student will reach an understanding of these statistical ideas, be able to deal critically with statistical arguments, and gain an understanding of the impact of statistical ideas on public policy and in other areas of academic study. Prerequisite: MA 102 with a grade of CR or MA 095 with a grade of 'C' or higher, or ACT Math score of 18-20 with MA 095 placement score of 14 or higher or ACT Math score of 21 or higher. (University Studies course) (3)

**MA 218. Middle School Math.** Selected mathematics topics for teachers of middle school mathematics. Prerequisite: MA 134 with a grade of 'C' or higher and a Secondary and a Middle Education major. (3)

**MA 223. Elementary Probability and Statistics.** Introduction to the basic ideas of statistics: descriptive measures, elementary probability, distributions, estimation, hypothesis testing, correlation, and linear regression. Prerequisite: MA 134 with a grade of 'C' or higher. (3)

**MA 230. Mathematics for the Early Childhood Teacher.** Topics taught in mathematics classes K-3. Emphasizes the logic and development of number concepts, classifications, numeration, attributes and patterns, measurement and geometry of shapes. May be counted only as elective credit except for a degree program in which this course is expressly required. Prerequisite: MA 118 with a grade of 'C' or higher. (2)

**MA 240. Analytic Geometry and Calculus III.** Vectors and solid analytic geometry, partial differentiation, multiple integrals, topics in vector calculus. Prerequisite: MA 145 with a grade of 'C' or higher. (3)

**MA 245. Vector Calculus.** Vectors, vector functions, vector geometry, vector analysis. Prerequisite: MA 240 with a grade of 'C' or higher. (2)

**MA 250. Foundations of Mathematics.** An introduction to understanding and writing proofs using fundamental concepts such as relations, equivalence, partitions, mathematical induction, functions, development of number systems, and infinite sets. Prerequisites: MA 138 with a grade of 'C' or higher; MA 139 or MA 140 with a grade of 'C' or higher. (3)

**MA 318. Mathematics II.** A development of the real number system, its properties and applications, including algebraic logic, graphing, statistics, probability, and measurement. May be counted only as elective credit except for a degree program in which this course is expressly required. Prerequisite: MA 118 with a grade of 'C' or higher. (3)

**MA 338. Discrete Mathematics II.** An applied mathematics course that emphasizes fundamental principles of discrete mathematics and their applications to computer science. Topics include the principle of inclusion and exclusion, generating functions, recurrence relations, graph theory, Boolean algebra, coding theory and combinatorial designs. Prerequisite: MA 138 with a grade of 'C' or higher. (3)

**MA 340. Concepts of Geometry.** Axiomatic geometry, Menelaus' and Ceva's theorems, harmonic elements and cross ratio, Desargues' theorem, and inversion. Prerequisite: MA 139 or MA 140 with a grade of 'C' or higher. (3)

**MA 345. Linear Algebra.** Systems of linear equations, matrices and Gaussian elimination, vector spaces, eigenvalues and eigenvectors, inner products and orthogonal sets. Prerequisite: MA 139 or MA 140 with a grade of 'C' or higher. (3)

**MA 350. Differential Equations I.** Theory and techniques of solving ordinary differential equations, applications, numerical methods, series solutions, and Laplace transforms. Prerequisite: MA 240 with a grade of 'C' or higher. (3)

**MA 418. Geometry For Teachers.** Euclidean geometry (demonstrative, coordinate, transformational), intuitive relations, constructions, properties of lines, polygons, circles, and 3-dimensional figures. Prerequisite: MA 118 with a grade of 'C' or higher. (3)

**MA 423. Statistical Analysis for Forensic Science.** Introduction to the statistical analysis of genetic data used in forensic science. Basic probability distributions used in analyzing genetic data will be discussed. Emphasis will be placed on estimation and statistical inferential procedures in forensic science. Prerequisite: MA 140 with a grade of 'C' or higher, or consent of instructor. (3)

**MA 440-441. Independent Study.** Study topics in mathematics not covered in other courses. Prerequisite: MA 240 with a grade of 'C' or higher. (1-2)

**MA 443. Elementary Number Theory.** Topics of number theory, including fundamental laws, Diophantine equations, the integers, and the properties of linear and quadratic congruences. Prerequisite: MA 139 or MA 140 with a grade of 'C' or higher. (3)

**MA 445. Modern Algebra.** Introduction to the study of sets, rings, fields, groups, and vector spaces. Prerequisite: MA 250 with a grade of 'C' or higher. (3)

**MA 448. Mathematics Seminar.** Prerequisite: MA 240 with a grade of 'C' or higher. (1)

**MA 461-463. Special Topics in Mathematics.** Lectures, discussions, and/or assigned readings on various topics in mathematics. The topic will vary with each offering. (1-3)

**MA 464. Mathematical Cryptography.** Course will cover basic concepts of secure communication, classical cryptography and cryptanalysis, monoalphabetic and polyalphabetic ciphers, Shannon's theory of secrecy, modern private-key cryptosystems such as DES and AES, and public-key cryptosystems such as RSA. Prerequisites: MA 223 or MA 250 or MA 338 or MA 345 or MA 443 with a grade of 'C' or higher. (3)

**MA 486-488. Internship in Mathematics.** A supervised learning and work experience in mathematics which enhances the student's understanding of,

appreciation for, and the application of mathematics. Prerequisites: 45 hours completed; GPA above 3.0; 16 hours above MA 134; consent of instructor. (1-3)

**MA 523. Probability and Statistics I.** Introduction to probability and statistics using the tools of calculus. Algebra of probability, random variables, discrete and continuous distributions. Prerequisite or Co-requisite: MA 240. (3)

**MA 524. Probability and Statistics II.** Continuation of MA 523 with emphasis on applications sampling, estimation, hypothesis testing, regression, experimental design, nonparametric methods. Prerequisite: MA 523. (3)

**MA 540. Projective Geometry.** Non-Euclidean geometry, study of projective geometry and its relation to other geometries. Prerequisite: MA 340 or 10 hours of mathematics courses numbered above MA 140. (3)

**MA 545. Linear Algebra and Matrices.** Introduction to vector spaces, linear transformations, matrices, eigenvalues, eigenvectors, and numerical methods in linear algebra. Prerequisite: MA 445. (3)

**MA 546. Advanced Calculus I.** Elementary set theory and topology, sequences and series, continuity and differentiability of functions on Euclidean space. Prerequisites: MA 240; MA 250. (3)

**MA 547. Advanced Calculus II.** Convergence of series of functions, Implicit Function Theorem, integration. Prerequisite: MA 546. (3)

**MA 550. Differential Equations II.** Theory and techniques of solving ordinary differential equations, partial differential equations, boundary value problems, applications, numerical methods, and stability. Prerequisite: MA 350. (3)

**MA 560. Research Methods in Mathematics.** An overview of research methods. Practice in the methods for the formulation and solution of problems. Prerequisite: MA 240 or MA 445. (3)

**MA 580. Experimental Design and Analysis of Variance.** Completely randomized design and analysis, randomized block design and analysis, factorial experiments, split-plot design and analysis, repeated measurement experiments and analysis, analysis of covariance. Prerequisites: MA 223 or consent of instructor. (3)

**See University Studies (UI) listings for description of:**

**UI 438. The Nature and Growth of Mathematical Thought.** (3)

## **MEDICAL TECHNOLOGY (MT)**

**MT 200. Introduction to Medical Technology.** A fourth semester on campus course for medical technology majors to acquaint students with the profession and clinical year program of study. Prerequisite: BS 103 or BS 108; CH 187; or consent of Med Tech. advisor. (1)

The following courses comprise the fourth year of the cooperative Medical Technology Program and must be taken in an NAACLS accredited program. There may be slight variations in credit hours granted, course titles and course content depending on the specific clinical program.

**MT 300. Clinical Chemistry.** Analytical and theoretical aspects of the clinical biochemistry of body fluid constituents and their determination using manual and instrumental techniques. (8-10)

**MT 301. Clinical Microscopy.** Principles and techniques of physical, chemical and microscopic examination of urine and other excreta as related to disease processes. (1-2)

**MT 302. Hematology and Coagulation.** Study of cellular elements of blood and bone marrow as related to disease. Principles and techniques in homeostasis, blood coagulation and hemorrhage disorders. (6-8)

**MT 303. Serology Immunology.** Science of immunity including antibody development, principles of antigenantibody interactions and techniques of serological testing for various disease states. (2-4)

**MT 304. Clinical Microbiology.** Techniques of handling, isolating and identifying pathogenic microorganisms; laboratory tests in chemotherapy and diagnostic bacteriology, mycology and parasitology. (7-9)

**MT 305. Blood Bank-Immunoematology.** Study of blood group systems and the immune response. Proper clinical utilization of blood components. (3-4)

**MT 306. Special Topics in Medical Technology.** Study in the areas of in-service education, management and supervision, research and development as related to the clinical laboratory. (1-4)

## **MUSIC (ME, MH, MM, MP, MU)**

**ME 001. Senior Recital.** A juried public recital of one-half hour in length, to be presented in final semester of study. Music Education majors only. Prerequisite: 400 level applied music and instructor approval. (0)

**ME 222. Principles of Teaching Music.** An introductory course for prospective music teachers focusing on the role of music in the schools. Co-requisite: PY 222. (2 hours, with coordinated field experience)



**ME 250. Trumpet and Horn Techniques.**

Methods, materials, and techniques for teaching the high brass instruments. Pre- or corequisite: Music major or instructor consent. (1)

**ME 251. Trombone, Euphonium, and Tuba Techniques.** Methods, materials, and techniques for teaching the low brass instruments. Pre- or corequisite: Music major or instructor consent. (1)

**ME 252. Flute and Double Reed Techniques.** Techniques, theory and pedagogy of the flute, oboe and bassoon, including embouchure formation, fingering, reed adjustment, and materials. Two sessions. Pre- or corequisite: Music major or instructor consent. (1)

**ME 253. Single Reed Methods.** Techniques and pedagogy of the clarinet and saxophone, including embouchure, fingering, reed selection and adjustment, and materials. Two sessions. (1)

**ME 260. String Techniques.** Basic finger patterns and bowing techniques for the violin, viola, cello, and bass. Materials for teaching. Three sessions. Pre- or corequisite: Music major or instructor consent. (2)

**ME 261. Percussion Techniques.** Methods and materials for teaching percussion instruments. (2)

**NOTE:** ME 270 through ME 473 are open to Music Education Majors only who have passed all parts of the Sophomore Review and who have been admitted to the Teacher Education Program.

**ME 270. Music Education Block II: Field Experience.** Integration of appropriately designed field experience corresponding with achievement of the minimum competency standards specified in Secondary Block II coursework. Prerequisite: Music Education Block I. Co-requisites: ME 271; ME 272; ME 371. (3)

**ME 271. Theories of Learning and Management.** Classroom instruction in learning theory and behavior management coordinated with instruction of a student in an integrated field experience. Prerequisites: Music Education Block I; full admission to the teacher education program. Co-requisites: EF 304; ME 270; ME 272; ME 371. (2)

**ME 272. Techniques of Teaching Reading Music.** Examination of the role of content teachers in improving reading skills. Analyzes problems of reading music and notation symbols for elementary and secondary students. Prerequisite: Music Education Block I. Co-requisites: ME 270; ME 271; ME 371. (2)

**ME 300. Marching Band Techniques I.** History and function of a marching band program as well as the practical experience in organization, show design, music selection, and drill design. Prerequisite: Two

semesters of MU 386. Co-requisite: MU 386. (.5)

**ME 369. Elementary Music Methods.** Methods and materials for teaching general music classes in elementary schools. Prerequisites: Music Education Block I; full admission to the teacher education program. Co-requisites: EF 304; ME 270; ME 271; ME 272; ME 371. (3)

**ME 370. Music Education Block III: Field Experience.** Application of knowledge of professional education, academic specialization, and exceptional children, to appropriate classroom settings. Prerequisites: Music Education Blocks I and II and pass sophomore review. Co-requisites: ME 372 or ME 373; EX 390. (1)

**ME 371. Techniques of Teaching General Music: Elementary and Secondary.** Methods and materials for teaching elementary and secondary general music classes. Prerequisite: Music Education Block II. Co-requisites: ME 270; ME 271; ME 272. (4)

**ME 372. Instrumental Techniques: Elementary and Secondary.** Preparation of prospective teachers to structure, organize, manage and instruct an instrumental music program. Prerequisites: Music Education Block II; full admission to the teacher education program. Co-requisites: EX 390; ME 370; MU 344. (3)

**ME 373. Choral Techniques: Elementary and Secondary.** Total program development: auditions, seating, adolescent voices, organization, management, literature selection, rehearsal techniques, style interpretation, concert programming and preparation. Prerequisite: Music Education Block II; full admission to the teacher education program. Co-requisites: EX 390; ME 370. (3)

**ME 400. Marching Band Techniques II.** Continuation of ME 300 with the experience of arranging music, designing drill and teaching show segments. Prerequisite: ME 300. Co-requisite: MU 386. (.5)

**ME 443. Choral Literature.** A study of choral literature and performance practices of the major style periods. Repertoire will be selected from all musical style periods and choral genres. Prerequisites: MU 341; MU 343; ME 373; or consent of instructor. (2)

**ME 450. Synthesis of Music Education Methods.** Focused readings and class activities which challenge students to relate specific course material to overall preparation as music educators. Prerequisite: Music Education Block III. (2)

**ME 451-453. Topics in Music Education.** Focus on a specific area of interest in music education: elementary or secondary; general, choral or instrumental. Prerequisite: Junior standing. Offered on demand. (1-3)

**ME 473. Techniques of Teaching Choral Literacy.** Materials and methods for teaching choral literacy. Tonal and rhythmic vocabularies, analysis of sight-singing literature, review of available materials and group instructional techniques. Prerequisites: Music Education Block III; MU 343. (2)

**MH 251. Music History and Literature to 1800.** Examination of and aural exposure to musical literature in art music of Western and non-western cultures in the context of coherent style periods. Emphasis on the interrelation of history and culture as influencing musical literature to 1800. Prerequisites: Ability to read music; MU 182 or UI 100 theme of Music Makers; consent of instructor. (3)

**MH 252. The Evolution of Musical Style Since 1827.** An analytical examination of representative musical works since 1827 with emphasis on understanding the manipulation of musical symbols and its effects. Prerequisite: Ability to read music. (University Studies course) (3)

**MM 001. Entry level proficiency examination in aural skills.** For all music majors. (0)

**MM 002. Exit level proficiency examination in aural skills.** For all music majors. Prerequisites: MM 204; MM 208. (0)

**MM 101. Theories of Music in Culture.** Fundamentals of music in resources and practices of Western and Nonwestern cultures. Prerequisite: Ability to read music. Co-requisite: MM 105. (University Studies course) (3)

**MM 102. Basic Harmony and Form.** Fundamentals of harmony and form as practiced in Western music of the 18th and 19th centuries. Prerequisite: MM 101. Co-requisite: MM 106. (3)

**MM 105. Aural Skills I.** Acquisition of skills to recognize and perform elementary rhythmic and melodic patterns; emphasis on triad and seventh chord identification. Prerequisite: Ability to read music. Co-requisite: MM 101. (1)

**MM 106. Aural Skills II.** Continued emphasis on rhythmic, melodic, sight singing and harmonic dictation. Identification of common cadencial progressions. Prerequisites: MM 101 and MM 105. Co-requisite: MM 102. (1)

**MM 107. (Cross-listed as TH 107) Theory Skills and Analysis for Music Theatre.** Development of analytical skills in music theatre repertoire. Two lectures; one lab. Prerequisites: MM 101; MM105. (3)

**MM 203. Advanced Harmony, Form and Counterpoint.** Advanced aspects of harmony and form in Western music of the 18th and 19th centuries with an

introduction to 18th century counterpoint. Prerequisite: MM 102. Co-requisite: MM 207. (3).

**MM 204. Twentieth Century Techniques.** Advanced aspects of harmony, form and counterpoint in Western music of the late 19th and 20th centuries. Prerequisite: MM 203. Co-requisite: MM 208. (3)

**MM 207. Aural Skills III.** Identification of progressions involving modulation and transposition; sight singing involving modulation. Prerequisites: MM 102; MM 106. Co-requisite: MM 203. (1)

**MM 208. Aural Skills IV.** Atonal sight singing. Basic improvisational techniques; rhythm reading with shifting meters; advanced score reading. Prerequisites: MM 203; MM 207. Co-requisite: MM 204. (1)

**MP 100-599. Private Music Lessons.** Private music lessons are available in the following areas:

<b>Voice</b>	<b>Flute</b>	<b>Trombone</b>
<b>Piano</b>	<b>Clarinet</b>	<b>Euphonium</b>
<b>Organ</b>	<b>Saxophone</b>	<b>Tuba</b>
<b>Violin</b>	<b>Oboe</b>	<b>Percussion</b>
<b>Viola</b>	<b>Bassoon</b>	<b>Guitar</b>
<b>Cello</b>	<b>Trumpet</b>	<b>Composition</b>
<b>String Bass</b>	<b>Horn</b>	<b>Harpichord</b>

Details are available in the Music Department or the Registrar's Office. Prerequisite: Consent of department. (1-3)

**MU 001. Piano Proficiency.** Exit level proficiency examination. Requirement for all music majors. Prerequisite: MU 254 or equivalent experience. (0)

**MU 002. Sophomore Review.** Mid-point level proficiency examination in music. For all music majors. Prerequisite: Consent of department. (0)

**MU 110. Recitals and Concerts.** Attendance at musical performances. (Music majors and minors only) (0)

**MU 114. Singers Diction.** Development of correct Italian, ecclesiastical Latin, German, and French pronunciation for singing. Prerequisite: MP 101 or MP 102; consent of instructor. (2)

**MU 121. (Cross-listed as TH 122) Class Voice for Music Theatre.** Principles of singing and vocal technique. (2)

**MU 151. Functional Piano I.** To develop basic piano skills which enable musicians to function in classroom, studio and rehearsal settings. Prerequisite: Audition. (Music majors and minors only) (1)

**MU 152. Functional Piano II.** To develop basic piano skills which enable musicians to function in classroom, studio and rehearsal settings. Prerequisite: MU 151 or audition. (Music majors and minors only) (1)

**MU 181. Musical Encounters.** A course in music appreciation which develops informed judgment about music through exposure to live performance. (University Studies course) (3)

**MU 182. Music: An Artistic Expression.** An examination of music as artistic expression and an analysis of the role music has played in the human experience. (University Studies course) (3)

**MU 190. Jazz Appreciation.** An investigation of the development of jazz in order to develop an aesthetic awareness of this art form and its role in American Culture. (University Studies course) (3)

**MU 220. Class Voice.** Principles of singing vocal literature. Applied in a group setting. Prerequisites: MM 101; MU 151; consent of instructor. (2)

**MU 245. (Cross-listed as AR/DA/TH 245) Creating and Managing a Career in the Arts.** Introduction to business skills and management practices for success in the visual and performing arts. (3)

**MU 253. Functional Piano III.** To develop basic piano skills which enable musicians to function in classroom, studio and rehearsal settings. Prerequisite: MU 152 or audition. (Music majors and minors only.) (1)

**MU 254. Functional Piano IV.** To develop basic piano skills which enable musicians to function in classroom, studio and rehearsal settings. Prerequisite: MU 253 or audition. (Music majors and minors only.) (1)

**MU 275. Percussion Ensemble.** Performance ensemble open to all university studies by audition. Prerequisites: Consent of instructor; must be able to read music and have a percussion background or keyboard technique. (1)

**MU 288. Arts for Teachers of Young Children.** Enables the student to integrate movement, music, drama, and visual art with each other as well as with different subjects in the preschool/daycare setting. (3)

**MU 299. Chamber Music and Accompanying.** Study and performance of chamber music in small ensembles or keyboard accompanying. Prerequisite: Consent of instructor. (1)

**MU 300. Junior Recital.** Public half-hour recital of music representing different styles and techniques. Required of all B.M./Performance students. Prerequisite: MP 300 level; consent of instructor. (May not be elected by students on B.A. or B.M.E. degree programs.) (1)

**MU 326. Topics in Performance Health.** Seminar devoted to research, discussion, and examination of physical, mental and performance strategies for achieving and maintaining optimum health while pursuing a career in music. Prerequisite: sophomore standing; music major or minor; or consent of instructor. (1)

**MU 338. Lute and Guitar Tablatures.** Introduction of the various Renaissance and Baroque lute and guitar tablatures in manuscript and print sources. Prerequisites: Junior or senior status; two semesters of private classical guitar lessons; or consent of instructor. (2)

**MU 341. Conducting.** Baton technique for development of basic, physical conducting skills. Lab setting with students conducting in class. Prerequisites: MM 204; MM 208; MU 253. (2)

**MU 343. Choral Conducting and Literature.** Supervised lab experience in developing conducting techniques, mastering basic conducting skills, rehearsal planning, rehearsal techniques, and study of choral literature. Prerequisite: MU 341; consent of instructor. (2)

**MU 344. Instrumental Conducting and Literature.** Supervised lab experience, developing conducting techniques for mastery of basic conducting skills. Development of rehearsal techniques and a significant study of instrumental literature. Prerequisite: MU 341. (2)

**MU 356. Music Skills for Classroom Teachers.** Provides the non-music major with basic skills of musical performance and notation to enable them to lead elementary students in classroom music activities. Two sessions. (1)

**MU 384. Guitar Ensemble.** Performance-oriented class in which students rehearse and perform chamber music for classical guitar from all style periods. By audition. (1)

**MU 386. Marching Band.** Open to all university students. Audition required. Prerequisite: Ability to read music. (1)

**MU 387. Jazz Band.** A select jazz ensemble open to all University students. Audition required. Prerequisite: Ability to read music. (1)

**MU 389. Choral Union.** An open-enrollment mixed choir for all university students, faculty, and staff. Specializes in performances of major choral works with orchestra. No audition required. (1)

**MU 390. Wind Ensemble.** A select ensemble open to all university students. Audition required. Prerequisite: Ability to read music. (1)

**MU 391. Concert Band.** Open to all university students. No audition required. Prerequisite: Ability to read music. (1)

**MU 392. Orchestra.** Open to all university students. Audition required. Prerequisite: Ability to read music. (1)

**MU 394. University Choir.** A select, fifty-voice mixed choir, open to all university students, which performs a variety of literature from all style periods. Audition required. Prerequisite: Ability to read music. (1)

**MU 397. Chamber Choir.** To study, rehearse and perform choral works most appropriately sung by small ensemble. Specific attention will be given to, but not limited to, the music of the Renaissance and Baroque periods. (1)

**MU 398. Opera Theatre Workshop.** Practical experience in various phases of opera production and participation in the musical preparation of appropriate operatic roles. Open to all University students. Prerequisite: Consent of instructor. (1)

**MU 400. Senior Recital.** Public one-hour recital representing different periods or program of compositions (Composition majors). Required of all B.M. degree students. Prerequisite: MP 400 level; consent of department. Required of Bachelor of Music degree students. May not be elected by students on the B.A. or B.M.E. degree programs. Prerequisite: MP 4xx applied music level; consent of department. (2)

**MU 424. Vocal Pedagogy.** Processes involved in voice production; respiration, phonation, articulation, and resonance. Physiological, psychological, acoustical problems in teaching singing. Prerequisite MP 3xx applied music level; or consent of instructor. (2)

**MU 430. Pedagogy: Applied Area.** A study of the physiological, psychological, and acoustical problems and process in teaching applied music. Prerequisite: 300 level standing in applied music. (2)

**MU 432. Literature: Applied Area.** The study of the solo literature in a student's major area of emphasis through performance, guided listening, and analysis. Prerequisite: 300 level standing in applied music. (2)

**MU 490-492. Independent Study.** (1-3)

**MU 499. Accompanying.** Study and performance of chamber music and accompanying involving keyboard instruments. Prerequisites: MU 299, Junior standing. (1)

**See University Studies (UI) listings for descriptions of:**

**UI 310. The American Musical Experience.** (3)

**UI 315. Electronics and Computers in Music.** (3)

**UI 392. The Age of Romanticism** (3)

**UI 393. The Age of Modernism.** (3)

**UI 394. Music and Culture: 1600-1750.** (3)

**UI 396. The Age of Beethoven.** (3)

**UI 397. Music in Medieval and Renaissance Culture.** (3)

**UI 402. Music in World Cultures.** (3)

**NOTE:** Students may receive one hour of credit per semester for participation in band, orchestra, small ensemble, or choir, up to a maximum of three hours applicable toward a degree, if students are not music majors or minors or pursuing music as an area of specialization.

## **NURSING (NC, NS)**

**NOTE:** When a student is enrolled in NC and NS courses with the same course number, both courses must be successfully completed in order for the student to continue in the baccalaureate program.

**NC 371. Fundamentals Clinical.** Clinical and laboratory component of NS 371 Fundamentals of Nursing. Prerequisites: Satisfactory completion of pre-nursing requirements and formal admission into the BSN program. Corequisites: NC 372; NS 371; NS 372; NS 373; NS 374. (3)

**NC 372. Assessment Clinical.** Clinical and laboratory component of NS 372 Nursing Assessment. Prerequisites: Satisfactory completion of pre-nursing requirements and formal admission into the BSN program. Corequisites: NC 371; NS 371; NS 372; NS 373; NS 374. (1)

**NC 387. Adult Health I Clinical.** Clinical component of NS 387 Adult Health I. Prerequisites: Second semester junior standing within the nursing major or consent of instructor; NC 371; NC 373; NS 371; NS 372; NS 373; NS 374. Co-requisites: NC 388; NC 389; NS 381; NS 387; NS 388; NS 389. (2)

**NC 388. Maternal-Newborn Clinical.** Clinical component of NS 388 Maternal-Newborn Nursing. Prerequisites: Second semester junior standing within the nursing major or consent of instructor; NC 371; NC 372; NS 371; NS 372; NS 373; NS 374. Corequisites: NC 387; NC 389; NS 381; NS 387; NS 388; NS 389. (1)

**NC 389. Mental Health Clinical.** Clinical component of NS 389 Mental Health Nursing. Prerequisites: Second semester junior standing within the nursing major or consent of instructor; NC 371; NC 372; NS 371; NS 372; NS 373; NS 374. Corequisites: NC 387; NC 388; NS 381; NS 387; NS 388; NS 389. (1)

**NC 487. Adult Health II Clinical.** Clinical component of NS 487 Adult Health II. Prerequisites: First semester senior standing in the BSN program; must have completed all 300-level NC and NS courses. Corequisites: NC 488; NC 489; NS 487; NS 488; NS 489. (2)

**NC 488. Pediatric Clinical.** Clinical component of NS 488 Pediatric Nursing. Prerequisites: First semester senior standing in the BSN program; must have com-

pleted all 300-level NC and NS courses. Corequisites: NC 487; NC 489; NS 487; NS 488; NS 489. (1)

**NC 489. Nursing of Elderly Clinical.** Clinical component of NS 489 Nursing of the Elderly. Prerequisites: First semester senior standing in the BSN program; must have completed all 300-level NC and NS courses. Corequisites: NC 487; NC 488; NS 487; NS 488; NS 489. (1)

**NC 491. Transitions Clinical.** Clinical component of NS 491 Transitions in Nursing. Prerequisites: Second semester senior standing in the BSN program; All 300-level NC and NS courses; NC 487; NC 488; NC 489; NS 487; NS 488; NS 489. Corequisites: NC 492; NC 498; NS 491; NS 492; NS 498; NS 499. (2)

**NC 492. Community Health Clinical.** Clinical component of NS492 Community Health Nursing. Prerequisites: Second semester senior standing in the BSN program; All 300-level NC and NS courses; NC 487; NC 488; NC 489; NS 487; NS 488; NS 489. Corequisites: NC 491; NC 498; NS 491; NS 492; NS 498; NS 499. (2)

**NC 498. Nursing Practicum Clinical.** Clinical component of NS498 Nursing Practicum. Concentrated practice in collaboration with assigned preceptor, utilizing a variety of health care settings. Prerequisites: Second semester senior standing in the BSN program; All 300-level NC and NS courses; NC 487; NC 488; NC 489; NS 487; NS 488; NS 489. Corequisites: NC 491; NC 492; NS 491; NS 492; NS 498; NS 499. (3)

**NS 371. Fundamentals of Nursing.** Fundamental skills, concepts, and theories necessary for application and critical thinking in the nursing skills laboratory and clinical setting. Prerequisites: Satisfactory completion of pre-nursing requirements and formal admission into the BSN program. Corequisites: NC 371; NC 372; NS 372; NS 373; NS 374. (3)

**NS 372. Nursing Assessment.** Identification of factors influencing functioning in everyday living, application of basic physical, cultural, and spiritual assessment principles and techniques. Prerequisites: Satisfactory completion of pre-nursing requirements and formal admission into the BSN program. Corequisites: NC 371; NC 372; NS 371; NS 373; NS 374. (2)

**NS 373. Pharmacology.** Overview of drug categories and actions as applied to clients of all ages, with an emphasis on nursing care. Prerequisites: Satisfactory completion of pre-nursing requirements and formal admission into the BSN program. Co-requisites: NC 371; NC 372; NS 371; NS 372; NS 374. (3)

**NS 374 Pathophysiology. Effect of pathology on normal body processes.** Includes genetic and

environmental risk factors, manifestations, and treatment modalities. Prerequisites: Satisfactory completion of pre-nursing requirements and formal admission into the BSN program. Corequisites: NC 371; NC 372; NS 371; NS 372; NS 373. (3)

**NS 380. Holistic Assessment.** Assessment of physical, emotional, spiritual, and sociocultural dimensions across the life span related to environment, lifestyles, health patterns, and community resources. For RN-BSN students or permission of instructor. (4)

**NS 381. Nursing Research.** Basic concepts of research process. Emphasizes the roles of nurses in research and the importance of evidence-based nursing practice. Prerequisites: Second semester junior standing within the nursing major or consent of instructor; NC 371; NC 372; NS 371; NS 372; NS 373; NS 374. Corequisites: NC 387; NC 388; NC 389; NS 387; NS 388; NS 389. (2)

**NS 385. Research in Professional Practice.** Basic concepts of research process. Emphasizes role of nurse as consumer of research. Prerequisites: NS 383; RN-BSN students only. (2)

**NS 386. Professional Practice: Community Health Nursing.** Introduction, application of community health concepts related to rural populations. Emphasizes independent decision making based on assessment of individuals, families and communities. Prerequisites: NS 383; RN-BSN students only. (6)

**NS 387. Adult Health I.** Application of knowledgeable caring, evidence-based practice guidelines to introductory practice in medical-surgical nursing roles when caring for adults. Prerequisites: Second semester junior standing within the nursing major; NC 371; NC 372; NS 371; NS 372; NS 373; NS 374. Corequisites: NC 387; NC 388; NC 389; NS 381; NS 388; NS 389. (3)

**NS 388. Maternal-Newborn Nursing.** Application of knowledgeable caring for childbearing families in interdisciplinary settings, including normal pregnancy, birth, common complications during pregnancy, after birth. Prerequisites: Second semester junior standing within the nursing major; NC 371; NC 372; NS 371; NS 372; NS 373; NS 374. Corequisites: NC 387; NC 388; NC 389; NS 381; NS 387; NS 389. (3)

**NS 389. Mental Health Nursing.** Application of knowledgeable caring for clients experiencing emotional/spiritual problems. Promoting management of psychiatric symptoms, physical, emotional, and spiritual health. Prerequisites: Second semester junior standing within the nursing major; NC 371; NC 372; NS 371; NS 372; NS 373; NS 374. Co-requisites: NC 387; NC 388; NC 389; NS 381; NS 387; NS 388. (3)

**NS 390. Framework for Professional Nursing.** Focus on goals of baccalaureate education in preparing the nurse for professional nursing practice. Emphasizes professional nursing roles and role change. For RN-BSN students only. (4)

**NS 480. Professional Practice.** Nursing Leadership Management. Introduction and application of leadership/management concepts in leading others and managing resources to improve nursing practices. Prerequisite: RN-BSN students only. (6)

**NS 483. Gerontological Nursing and Care of Older Adults.** Introduction to gerontological nursing concepts, aging theories, practice standards, cultural influences and public policy emphasizing evidence based practices. Prerequisite: RN-BSN students only. (3)

**NS 487. Adult Health II.** Application of knowledgeable caring for adults with acute or chronic illness based on evidenced-based practice. Introduces holistic care management. Prerequisites: First semester senior standing in the BSN program; must have completed all 300-level NC and NS prefix courses. Co-requisites: NC 487; NC 488; NC 489; NS 488; NS 489. (3)

**NS 488. Pediatric Nursing.** Application of knowledgeable caring for children and their families. Standards of practice applied in interdisciplinary professional practice settings. Prerequisites: First semester senior standing in the BSN program; must have completed all 300-level NC and NS prefix courses. Co-requisites: NC 487; NC 488; NC 489; NS 487; NS 489. (3)

**NS 489. Nursing of the Elderly.** Care management of the elderly in interdisciplinary settings, focusing on reducing adverse events, maximizing quality of life among frail elderly. Prerequisites: First semester senior standing in the BSN program; must have completed all 300-level NC and NS prefix courses. Co-requisites: NC 487; NC 488; NC 489; NS 487; NS 488. (3)

**NS 491. Transitions in Nursing.** Application of knowledgeable caring in roles of manager/leader, collaborator, care provider, member of the profession, transitioning into practice, licensure. Prerequisites: Second semester senior standing in the BSN program. All 300-level NC and NS prefix courses; NC 487; NC 488; NC 489; NS 487; NS 488; NS 489. Corequisites: NC 491; NC 492; NC 498; NS 492; NS 498; NS 499. (3)

**NS 492. Community Health Nursing.** Introduction and application of community health concepts, emphasizing health promotion/disease prevention and focusing on the community as a client. Prerequisites: Second semester senior standing in the BSN program; all 300-level NC and NS prefix courses; NC 487; NC 488; NC 489; NS 487; NS 488; NS 489. Corequisites: NC 491; NC 492; NC 498; NS 491; NS 498; NS 499. (3)

**NS 498. Nursing Practicum.** Internship for senior nursing students. Concentrated clinical practice in collaboration with assigned preceptor, utilizing a variety of health care settings. Prerequisites: Second semester senior standing in the BSN program; all 300-level NS prefix courses; NC 487; NC 488; NC 489; NS 487; NS 488; NS 489. Corequisites: NC 491; NC 492; NC 498; NS 491; NS 492; NS 499. (1)

**NS 499. NCLEX Prep.** NCLEX review sessions, one exam, with scheduled retesting options; students must demonstrate potential for success on NCLEX-RN. Prerequisites: Second semester senior standing in the BSN program; all 300-level NC and NS prefix courses; NC 487; NC 488; NC 489; NS 487; NS 488; NS 489. Corequisites: NC 491; NC 492; NC 498; NS 491; NS 492; NS 498. (2)

## PHILOSOPHY (PL)

**PL 110. Readings in Philosophy.** An exploration of the main issues in philosophy through philosophical and literary readings. (University Studies course) (3)

**PL 115. Philosophical Writing.** A writing study of philosophy emphasizing the clarification, development, criticism, and defense of philosophical ideas. (University Studies course limited to students admitted to the University Honors Program) (3)

**PL 120. Symbolic Logic I.** A formal study of argument and inference, emphasizing the application of symbolic techniques to ordinary language. (University Studies course) (3)

**PL 203. Aesthetics and the Arts.** An introduction to the concepts, theories, literature, criticism and modes of perception appropriate to understanding the arts, developing aesthetic attitudes and making reasoned evaluative judgments. (University Studies course) (3)

**PL 204. Ethical Theory.** A normative study of human behavior including an examination of ethical theories and theories of moral development. (University Studies course) (3)

**PL 224. Philosophy of Women.** Historical survey of philosophical views on women, including the analysis of controversial issues arising from the women's movement. (3)

**PL 245. Social Philosophy.** A study of basic concepts and issues in social philosophy. (University Studies course) (3)

**PL 300. Ancient Philosophy.** A study of the main philosophical movements, texts and thinkers from ancient Greece through the Roman, Islamic and Medieval periods. (3)

**PL 310. Modern Philosophy.** A study of the main philosophical movements, texts and thinkers from the rise of science in the seventeenth century through the development of rationalism, empiricism, Kantianism, and the great social and political philosophies of the eighteenth and nineteenth centuries. (3)

**PL 330. Symbolic Logic II.** The analysis of formal symbolic systems through contemporary logical theory and techniques of deductive proof. (3)

**PL 340. Philosophy of Religion.** A philosophical analysis of issues basic to understanding religion, including the problem of evil, free will and divine foreknowledge, arguments for the existence of God, relation of faith and reason, and arguments for personal immortality. (3)

**PL 390-399. Contemporary Philosophy: Variable Topics.** A detailed study of one aspect of contemporary philosophy such as: analytic philosophy, philosophy of mind, epistemology. (3)

**PL 400-409. Seminar: Topics of Philosophy.** An analysis of specific philosophical issues, such as time, free will, the problem of universals, the nature of matter. (May be repeated for credit when different topics are offered). (3)

**PL 450-452. Seminar: Methods and Movements in Philosophy.** An examination of philosophic traditions, such as phenomenology, linguistic analysis, modern philosophical humanism. (May be repeated for credit when different traditions are offered). (3)

**PL 453. Philosophy of Technology.** (3)

**PL 481. Practicum.** Senior level practicum stressing the application of philosophical principles in undergraduate research, classroom teaching, internship, community service or other approved experiential contexts. (1)

**PL 497-499. Independent Study in Philosophy or Religion.** Directed individual study of special interest areas in philosophy or religion. Prerequisite: Consent of instructor. (1-3)

**See University Studies (UI) listings for descriptions of:**

**UI 305. Judicial Reasoning.** (3)

**UI 336. Religion in America.** (3)

**UI 352. Medical Ethics.** (3)

**UI 368. Mind, Meaning, and Value.** (3)

**UI 369. Vice and Virtue.** (3)

**UI 370. Media Ethics.** (3)

**UI 400. Business and Ethics.** (3)

**UI 415. Science and Religion.** (3)

**UI 422. Scientific Reasoning.** (3)

**UI 429. Environmental Ethics.** (3)

## **PHYSICAL ACTIVITY (AT)**

### **AQUATICS:**

**AT 101. Aqua-Aerobics.** An introduction to basic body movements and aquatic conditioning exercises designed to contribute to a lifetime of cardiorespiratory fitness. (1)

**AT 102. Lifeguard Training.** Preparation for, and opportunity to obtain, the American Red Cross Lifeguard Training Certificate. Prerequisite: Equivalent of intermediate swimming skills. (1)

**AT 103. Swimming.** An individualized course that allows development and improvement of swimming skills from non-swimmer to advanced levels. (1)

**AT 110. Water Safety Instructor.** Preparation for, and opportunity to obtain, the American Red Cross Water Safety Instructor's New Material Certificate. Prerequisite: Current (within 3 years) American Red Cross Lifeguard Certificate or Emergency Water Safety Certificate. (1)

### **FITNESS:**

**AT 112. Tai Chi.** Instruction and practice in the basics of Tai Chi, combining body postures and mental imagery to enhance relaxation and health. (1)

**AT 125. Aerobic Kickboxing.** Introduction to the fundamentals of kickboxing. Designed to increase aerobic fitness, muscular strength, endurance and flexibility. (1)

**AT 130. Aerobics.** An introduction to the fundamentals of aerobics; special emphasis will be placed on aerobics as a lifetime physical fitness activity. (1)

**AT 132. Body Building.** Fundamentals of body building. Students attempt to develop muscular size while maintaining a symmetry of muscular definition. (1)

**AT 136. Jogging/Walking for Fitness.** Development of jogging and walking skills for lifetime fitness. (1)

**AT 138. Low Impact Aerobics.** An introduction to the fundamentals of low-impact aerobics. This course involves aerobic activity keeping one foot on the floor at all times (no jogging or jumping activities). Special emphasis will be placed on the use of low-impact aerobics as a lifetime physical fitness activity. (1)

**AT 142. Weight Training I.** Fundamentals of weight training. (1)

**AT 148. Yoga.** Instruction and practice in the basics of Hatha Yoga: beginning breathing patterns, relaxation techniques, physical postures, and concentration exercises. (1)

### **LIFETIME ACTIVITIES (INDIVIDUAL/DUAL):**

**AT 153. Angling, Archery, and Firearms.** Instruction and practice of angling technique, archery target shooting, and air rifle target shooting. (1)

**AT 156. Badminton.** Techniques, rules and strategy. (1)

**AT 164. Golf I.** Fundamentals of golf; attention to form, strokes, rules, etiquette. (1)

**AT 172. Orienteering.** Fundamental skills of map and compass reading and the development of strength and stamina through application of these skills. (1)

**AT 174. Rock Climbing and Rappelling.** Development of individual and group skills in solving physical situations and skill problems through role playing and initiative games. Involves both indoor team problem solving and outdoor work on the obstacle course. (1)

**AT 176. Tennis I.** Fundamental skills, rules and tactics. (1)

**AT 179. Racquetball.** Fundamental skills, rules and tactics. (1)

**LIFETIME ACTIVITIES (TEAM):**

**AT 184. Softball.** Fundamental skills, rules and strategy. (1)

**AT 186. Volleyball I.** Fundamental skills, rules and strategy. (1)

**AT 188. Basketball.** Fundamental skills, rules and strategy. (1)

**MARTIAL ARTS/SELF DEFENSE:**

**AT 192. Judo I.** Fundamental skills, rules and tactics. (1)

**AT 193. Judo II.** Advanced skills and tactics. Prerequisite: AT 192 or equivalent. (1)

**AT 196. Self Defense.** Fundamentals of self defense. (1)

**AT 198. Tae Kwon Do.** Fundamental techniques of Tae Kwon Do for students of varying skill and experience. (1)

**VARSITY SPORTS:**

**AT 200. Varsity Sports.** Conditioning, theory, and skill development in an intercollegiate varsity sport. Prerequisite: Member of varsity sport team. (1)

**AT 201. Varsity Sports.** Conditioning, theory, and skill development in an intercollegiate varsity sport. Prerequisite: AT 200. (1)

**PHYSICAL EDUCATION (PE)**

**PE 116. (Cross-listed as HL, RC, SM 116) Special Topics in Health, Human Performance and Recreation.** Special topics in health and leisure unavailable in the department curriculum. May be repeated for credit on different topics. (1-3)

**PE 201. Sport and Society.** The study of the interrelationships between society, culture, values, and

sport, and the ways in which they influence one another. (University Studies Course) (3)

**PE 216. Theory and Practice of Team Sports.** Theory, skill development and teaching techniques of basketball, flag football, fleetball, soccer, softball, team handball, and volleyball. (2)

**PE 217. Theory and Practice of Individual/Dual and Leisure Activities.** Theory, skill development and teaching techniques of angling, archery, badminton, bowling, firearms, golf, obstacle course, orienteering, racquetball, tennis, and track/field. (4)

**PE 220. First Aid.** American Red Cross requirements for first aid; opportunity for standard and advanced certification. (2)

**PE 235. Psychology of Coaching and Human Performance.** Development of a coaching philosophy, instructional techniques, and strategies for dealing with teaching, practice, and game situations. (3)

**PE 238. Foundations, History and Philosophy of Physical Education.** Overview of the foundations, philosophy and development of the physical education profession in the United States. (3)

**PE 239. Teaching Children Physical Education.** Teaching developmentally appropriate physical education in the elementary school. Two lectures and two labs per week. (3)

**PE 240. Rhythm, Plays and Games.** Theory, skill development, and teaching techniques of children's rhythms, creative movement, and rhythmic activities. Four hours lab per week. (2)

**PE 262. Aerobic Certification Training.** Training in the American Council on Exercise (ACE) aerobics certification program in preparation for the ACE-certified Aerobics Instructor examination. (2)

**PE 305. Motor Development and Learning.** Study of human movement from a motor development and motor learning perspective, and application to the teaching/learning of motor skills. Two hours lecture and two hours lab per week. (3)

**PE 308. Perceptual Motor Development.** Study of and involvement with children through motor development. Prerequisite: Block III or consent of instructor. (2)

**PE 309. Physical Education in the Elementary Curriculum.** An interdisciplinary approach to the integration of fundamental movement skills, wellness, and other physical education concepts with various elementary school disciplines. Co-requisite: Elementary Block III or consent of instructor. (1)

**PE 310. Tests and Measurements.** Analysis, construction, administration and use of tests in physical



activity and sport. Two hours lecture and two hours lab. (3)

**PE 315. Methods of Middle School Physical Education.** An intermediate study of developmentally appropriate physical education programs for middle school students. Two hours lecture and two hours lab. Prerequisite: PE 239. (3)

**PE 341. Physiology of Conditioning.** Designed to present current foundations, theories and methods of conditioning. Prerequisites: BS 113/013. (3)

**PE 361-363. Independent Study in Health, Human Performance and Recreation.** Topics not included in basic curriculum. (1-3)

**PE 408. Physical Education for Individuals with Disabilities.** Study of individuals with physical, mental, or emotional disabilities in a multicultural physical education setting. Two hours lecture and two hours lab. Prerequisite: EX 390 or consent of instructor. (3)

**PE 464. Kinesiology.** Basic patterns and mechanical principles of motor behavior and their application in physical education and sport. Prerequisites: BS 113/013 or BS 312. (3)

## **PHYSICS (PH)**

**PH 106/006. Physical Concepts.** An introduction to the concepts and principles governing the natural physical world and their relation to society. Emphasis on developing an appreciation for the role of science in our life. Does not count on a major or minor. Two lectures and two hour lab. (University Studies course) (3)

**PH 109/009. Exploring the Universe.** An examination of the physical nature of planets, stars and galaxies, their interrelationships and evolutionary processes. Emphasis on the role of scientific inquiry in our present understanding of the Universe. Does not count on a minor. Two lectures and two hour lab. (University Studies course) (3)

**PH 120/020. Introductory Physics I.** Concepts and principles of natural phenomena, including mechanics, heat and energy, wave motion and sound, with emphasis on the investigative processes. Four lectures and one two-hour lab. Prerequisite: MA 133; MA 134; or equivalent. (University Studies course) (5)

**PH 121/021. Introductory Physics II.** Electricity, magnetism, optics, and modern physics. Four lectures and one two-hour lab. Prerequisite: PH 120. (5)

**PH 218. Physical Science: A Process Approach.** Major topics include atomic structure, elements and compounds, chemical reactions and energy concepts of heat, light, sound, electricity and magnetism. Does

not count on a major or minor. Two lectures and two hour lab. Prerequisite: BS 118. (University Studies course) (3)

**PH 230/030. General Physics I.** Mechanics; kinematics and dynamics of linear and rotational motion; heat and thermodynamics. Four lectures and two hour lab. Prerequisite: MA 140. Pre or Co-requisite: MA 145. (5)

**PH 231/031. General Physics II.** Electricity, magnetism; wave motion and sound; geometrical and physical optics. Four lectures and two hour lab. Prerequisite: PH 230. Pre or Co-requisite: MA 240. (5)

**PH 328. Energy.** Energy sources and energy flow in an industrialized society. Energy resources, production, conversion, and consumption. Growth of energy use and its environmental implications. On demand. Counts on a minor only. Prerequisite: MA 134 or MA 135. (3)

**PH 341. Optics.** Geometrical and physical optics; Fourier analysis; interference, diffraction, double refraction, gratings and light in matter. Prerequisites: PH 231; MA 245. (3)

**PH 345. Experimental Methods I.** Selected experiments in physics and engineering with emphasis on measurement system design, equipment selection, acquisition and evaluation of data, and written and oral reporting. One lecture; 2 two-hour labs. Prerequisites: Logical Systems (MA 134 or higher); PH 121 or PH 231. (3)

**PH 360. Modern Physics.** Theory of special relativity, quantum physics, atomic structure, nuclear physics, elementary particles. Selected topics chosen from recent developments in physics. Prerequisites: PH 231/031; MA 245. (3)

**PH 370. Mechanics.** Selected topics in Newtonian mechanics, including kinematics and dynamics of particles, oscillations, gravitation, Lagrangian and Hamiltonian dynamics, central-force motion, noninertial reference frames, and rigid-body dynamics. Prerequisites: PH 231; MA 245. (3)

**PH 371. Electromagnetics.** Electric fields, potential and dielectrics; magnetic fields, magnetic properties of matter; Maxwell's equations and electromagnetic waves. Prerequisites: PH 231; MA 245. (3)

**PH 400. Topics in Physics and Engineering.** Study of subject matter not included in the regular departmental curriculum. Course title will vary. Format may include lectures, labs, seminars, or other forums as required by the specific course. Prerequisites: MA 245; PH 231; or consent of instructor. (3)

**PH 445. Experimental Methods II.** Advanced experiments in physics and engineering with emphasis on measurement system design, equipment selection, acquisition and evaluation of data and written and oral reporting. One lecture and two 2-hour labs. Prerequisite: PH 345 or UI 330. (3)

**PH 473. Quantum Mechanics.** The fundamental postulates of quantum mechanics and their applications to selected systems. Topics include one-dimensional systems, perturbation theory, three-dimensional systems, angular momenta, one-electron atom, Hartree-Fock formalism, variational principles and quantum theory of scattering. Prerequisite: PH 360. (3)

**PH 475-476. Literature of Physics.** Intensive study of sources of physics literature by students doing a literature search on a selected topic in physics. Prerequisite: Consent of department chairperson. (1-2)

**PH 477. Physics Seminar.** Presentations and discussions by faculty and students on recent topics encountered in reading or research. Prerequisite: PH 121 or PH 231. (1)

**PH 478-479. Undergraduate Research.** Original research for students demonstrating superior ability. May be repeated twice for credit. Prerequisite: Consent of department chairperson. (1-2)

**PH 490-491. Independent Study in Physics.** Individual studies on selected topics not covered by regularly scheduled courses. Prerequisite: Consent of department chairperson. (1-2)

**PH 550. National Physics Programs.** Study of precollege physics curricula based on nationally developed programs. Familiarization with lecture, laboratory, audiovisual, and reference materials. Use of microcomputers. Two lectures and two hour lab. 0 Prerequisites: PH 231; MA 245; or consent of instructor. (3)

**PH 570. Mathematical Physics.** Selected topics in vector analysis, coordinate transformations, Fourier series, Legendre and Bessel functions, and partial differential equations. Emphasis on practical applications in physics. Prerequisites: PH 231; MA 350; or consent of instructor. (3)

**See University Studies (UI) listings for descriptions of:**

**UI 330. Experimental Methods I.** (3)

## **POLITICAL SCIENCE (PI, PS)**

**PI 381-383. Political Science Internship.** Practical experience with a public agency providing firsthand experience in the operations of public policy. Prerequisite: PS 103 or PS 104; 2.50 GPA. (1-3)

**PS 001. Senior Assessment.** Standardized exam, portfolio submission, self-assessment and exit interview. Required of all Political Science majors in their final semester. (0)

**PS 103. U.S. Political Systems.** Institutions and processes of national and state government, including an analysis of the Missouri Constitution. (University Studies course) (3)

**PS 104. Comparative Political Systems.** The institutions, cultures and practices of democratic and nondemocratic governments, including the United States, including an analysis of the Missouri Constitution. (University Studies course) (3)

**PS 220. Missouri Government.** Required of students who have PS 102 transfer credit, and who have not completed PS 103 or PS 104. Prerequisite: PS 102. (1)

**PS 230. American Public Policy.** Major foreign and domestic policies of the U.S. with emphasis on current issues. Prerequisite: PS 103 or PS 104. (3)

**PS 240. Introduction to Political Science.** An introduction to the basic concepts and research methods of the discipline, including approaches to study of political science. Prerequisite: PS 103 or PS 104. (3)

**PS 280. Introduction to Global Issues.** Concepts and theories to analyze global issues emphasizing conflict, cooperation, arms control, human rights, the environment, development, and the role of the United States. Prerequisite: PS 103 or PS 104. (3)

**PS 300. Pre-Law LSAT.** Noncredit course designed to familiarize students with the Law School Admission Test (LSAT). (0)

**PS 310. Government and Politics in the American States.** In-depth analysis of the government processes and management of the American states with particular emphasis placed on their interaction. Prerequisite: PS 103 or PS 104. (3)

**PS 335. American Foreign Policy.** A study of the formulation and implementation of contemporary American foreign policy. Prerequisite: PS 103 or PS 104. (3)

**PS 355. Less Developed Nations.** A survey of socio-economic and political developments of Third World countries in Africa, Asia, and Latin America. Prerequisite: PS 103 or PS 104. (3)

**PS 360. Political Parties and Voting Behavior.** An examination of their organization and role in the political process with attention given to interest groups and public opinion. Prerequisite: PS 103 or PS 104. (3)

**PS 365. Legislative Process in the United States.** Introduction to American assemblies with primary atten-

tion on the U.S. Congress and its role in policy making. Prerequisite: PS 103 or PS 104. (3)

**PS 377. Government and Politics of East Asia.** Processes, structure, and function of political institutions of China, Japan, and Korea emphasizing domestic and foreign policy. (3)

**PS 380. International Organizations.** Origins, objectives, structures, and functions of the United Nations and non-affiliated organizations of regional cooperation. Prerequisite: PS 103 or PS 104. (3)

**PS 384-386. Political Science Internship.** Practical experience with a public agency providing firsthand experience in the operations of public policy. Prerequisites: PS 103 or PS 104; overall GPA of 2.50. (3)

**PS 387-389. Independent Study in Political Science.** Directed individual study of special interest areas in political science. Prerequisite: Consent of instructor. (1-3)

**PS 390. The American Judicial System.** Organization and function of federal and state courts including their interaction with the executive and legislative branches of government. Prerequisite: PS 103 or PS 104. (3)

**PS 402. Fundamentals of Public Administration.** A comprehensive examination of the operations of public agencies from an internal and external perspective. Prerequisite: PS 103 or PS 104. (3)

**PS 403. Public Personnel Administration.** An analysis of personnel practices, procedures, and research of the state and federal agencies. Prerequisite: PS 103 or PS 104. (3)

**PS 405. Organizational Theory and Behavior.** Major concepts of organization theory and behavior. Topics include organization structure and design, bureaucracy, the systems concept, leadership, culture, job satisfaction and motivation. Prerequisite: PS 103 or PS 104. (3)

**PS 415. Government Budgeting Process.** Procedures and decision making strategies involved in the preparation, authorization, and expenditure of the federal budget. Prerequisite: PS 103 or PS 104. (3)

**PS 418. Public Policy Analysis.** Systematic analysis of how public analysts evaluate different policy issues. Prerequisite: PS 103 or PS 104. (3)

**PS 425. Administrative Law and Procedure.** An analysis of rules, procedures, and decision-making practices of public agencies at the state and federal level. Prerequisite: PS 103 or PS 104. (3)

**PS 460. Government and Politics of Western Europe.** A study of government and politics of Western

Europe. This course provides a comparative perspective emphasizing the politics of Britain, France, Germany, Spain, Italy, and the institutions of the European Union. Prerequisite: PS 103 or PS 104. (3)

**PS 470. Politics of the Developed World.** An examination of the major political, social, and economic issues facing governments of the developed world. Prerequisite: PS 103 or PS 104. (3)

**PS 490. Constitutional Law.** Major decisions of the Supreme Court, the policy-making role of the Court and judicial behavior of judges. Prerequisite: PS 103 or PS 104. (3)

**PS 491. Variable Topics.** Analysis of variable topics in Political Science. May be repeated for credit. (3)

**PS 570. Comparative Government.** Governmental principles and practices in the United Kingdom, France, Germany, and the Soviet Union. Prerequisite: PS 103 or PS 104. (3)

**PS 580. International Politics.** Analysis of the super powers struggle for economic military and political power with emphasis on the Third World. Prerequisite: PS 103 or PS 104. (3)

**PS 595. International Law.** Examination of those principles generally governing the conduct of nations. Prerequisite: PS 103 or PS 104. (3)

**See University Studies (UI) listings for descriptions of:**

**UI 320. Modern Presidency (3)**

**UI 322. International Political Economy (3)**

**UI 342. Modern Political Thought (3)**

**UI 350. Middle East Politics (3)**

**UI 357. Early American Political Thought (3)**

**UI 358. Foundations of Political Thought (3)**

**UI 361. Contemporary Political Theory (3)**

**UI 440. The Holocaust (3)**

## **PSYCHOLOGY (PY)**

**PY 101. Psychological Perspectives on Human Behavior.** Examination of human behavior and experience from a psychological perspective. Application of psychological principles to understanding of human behavior. (University Studies course) (3)

**PY 102. Introduction to Psychology.** Introduction to the field of psychology. Includes perception, learning, memory, motivation, emotion, intelligence, personality, human development, psychopathology, and social behavior. (3)

**PY 103. Career Development in Psychology.** Introduction to the major and the discipline of psychology. Discussion of the philosophy and scientific nature

of a career in psychology, including active exploration of career possibilities. (3)

**PY 120. (Cross-listed as CF 120) The Child: Development from Conception to Adolescence.** An overview of the social, cognitive, physical and emotional changes that occur from conception to adolescence. Application of principles of development to the understanding of child development and behavior. (University Studies course) (3)

**PY 151. Social Decision Making.** Concepts, theories and research that contribute to understanding, analyzing and evaluating people's thinking and behavior in social psychological interactions. (University Studies course) (3)

**PY 220. Psychological Development Across the Life Span.** Broad overview of human development across the life-span. Reciprocal nature of the individual/environment interaction is emphasized. (University Studies course) (3)

**PY 222. Development of the Adolescent.** The basic physical, cognitive, social and personality development of the adolescent period will be examined. Efforts will be made to understand current issues affecting adolescence in light of recent empirical and theoretical knowledge. (University Studies course) (3)

**PY 250. Applied Psychology.** A comprehensive study of how psychology is used, how psychologists do their work and how applications of psychology affect daily life. (3)

**PY 251. Industrial and Organizational Psychology.** Survey of industrial-organizational psychology as a science and a profession. Theory is integrated with skill development in several areas. (3)

**PY 271. Research Design and Analysis I.** Introduction to basic data analysis used in psychological research, including descriptive and inferential techniques and elements of research design. (3)

**PY 301. Cross-Cultural Psychology.** Focus on understanding different cultural values, norms, and beliefs. Topics to be covered include the differences in cognitive processes that lead to misunderstandings and conflicts between members of different groups. (3)

**PY 325. Psychological Development of the Family.** Examination of psychological factors affecting family development and interaction across the stages of family life. (3)

**PY 329. (Cross-listed as PY 529) Psychology of Death and Dying.** An exploration of the significant psychological issues related to death, dying, and loss as they affect individuals in the 21st century. (3)

**PY 353. Social Cognition.** Analysis of theories, evidence, and practical applications of the way that people make sense of their personal and social lives. (3)

**PY 358. Social Psychology.** A survey of psychological aspects of social action and interaction, including aggression, attitudes, attraction, altruism, prejudice, group behavior, environmental psychology, and applied social topics. (3)

**PY 359. Psychology and the Law.** Psychological analysis of law, criminality and the judicial system. Emphasis on psychological research exploring all aspects of the legal system. (3)

**PY 362. Learning and Memory.** Basic phenomena of learning and memory, including: principles of classical and instrumental conditioning; the roles of contiguity, practice and reinforcement in learning; transfer of learning; and retention of learning. (3)

**PY 364. Comparative Cognition.** A review of the history and theory associated with the scientific study of cognition in animals. The course specifically reviews contemporary research in attention, memory, primate cognition, serial learning, timing and counting, and concept learning. Evolutionary similarities and differences among species are explored. (3)

**PY 366. Introduction to Sensation and Perception.** Introductory study of the behavioral, physiological and cognitive aspects of sensation and perception. (3)

**PY 370. Research Design and Analysis II.** Introduction to research methods used in psychological research, including experimental, survey, and observational designs. Prerequisites: PY 102 with a grade of C or better; PY 103 with a grade of C or better; PY 271 with a grade of C or better. (3)

**PY 432. Introduction to Personality.** Introduction to theories on personality, assessment of personality and application of personality theory and assessment to basic life processes. (3)

**PY 440. Abnormal Psychology.** Survey of classification and assessment of abnormal behavior, its causes and methods of treatment. (3)

**PY 441. Introduction to Clinical Psychology.** Survey of the understanding, assessment, treatment and prevention of maladaptive behavior. (3)

**PY 442. Psychotherapy.** Theoretical and methodological aspects of analytic, neo-analytic, existential, cognitive, and behavioral therapies and assessment of their clinical effectiveness. (3)

**PY 444. Childhood: Psychopathology.** Survey of the clinical description, causes and treatment of the major forms of abnormal behavior evident during

childhood and adolescence. Prerequisite: PY/CF 120 or PY 220. (3)

**PY 450. Organizations as Open Systems.** Organizations and organizational behavior are studied from an open system theory orientation. (3)

**PY 460. Cognitive Processes.** Principal cognitive processes in humans, theoretical explanations and empirical findings. Prerequisite: one PY course. (3)

**PY 465. Motivation and Emotion.** Physiological, social, cognitive, and environmental factors that contribute to the causation, maintenance, and regulation of motivated and emotive behaviors. (3)

**PY 466. Introduction to Physiological Psychology.** An introduction to the neural, hormonal, and genetic mechanisms that help mediate behavior. (3)

**PY 484. Advanced Research in Psychology.** A research experience emphasizing the integration of material from previous research courses through conducting an original research study under the direction of a mentor. Prerequisites (with grades of C or better): PY 102; PY 103; PY 271; PY 370. (3)

**PY 491-492. Directed Readings in Psychology.** Directed reading in an area of psychology allowing students to increase their knowledge in an area of individual interest. Prerequisites: Completion of 75 semester hours; minimum 2.75 GPA in psychology or 2.50 cumulative GPA; consent of department chairperson. (2-3)

**PY 493-494. Directed Research in Psychology.** Supervised experimental study of a psychological topic selected by the student, who should be well informed in fundamentals of experimental methods and statistics. Prerequisites: Completion of 75 semester hours; minimum 2.75 in psychology or 2.50 cumulative GPA; consent of department chairperson. (2-3)

**PY 495. Internship in Psychology.** Practical experience utilizing psychological principles and research methodology in applied settings. Prerequisites: Psychology major; 18 hours of PY courses; GPA of 2.50 in psychology. (3)

**PY 497. Historical Development in Psychology.** Development of psychology as a discipline and profession. An historical coverage of systems and directions representing the breadth and diversity of the discipline. Prerequisites: PY 370 with a grade of C or better and completion of the extended core requirements in the major. (3)

**PY 521. Advanced Child Development.** In-depth investigation of selected topics in cognitive, social, emotional and physical development from conception through late childhood. Prerequisite: PY 120 or PY 220 or PY 222; or consent of instructor. (3)

**PY 525. Maturity and Aging.** Investigation of the physical, intellectual, social and cultural influences on post-adolescent development. (3)

**PY 529. (Cross-listed as PY 329) Psychology of Death and Dying.** Examination of the processes of death, dying and bereavement in contemporary society. (3)

**PY 531. Psychological Testing.** Basic principles of construction, administration and interpretation of psychological tests. Considerations in the use of tests in various settings. (3)

**PY 555. Health Psychology.** Applications of psychology which contribute to the promotion of health and the prevention of disease through behavior change in health enhancing directions. Topics to be covered include health promotion and wellness, psychosomatic illness, risk factor identification, and disease prevention, and career opportunities in health psychology for administrators, service providers, and consultants. (3)

**PY 571. Introductory Behavioral Statistics.** An introduction to descriptive and inferential statistics used in the reporting of educational and psychological research. (3)

**See University Studies (UI) listings for descriptions of:**

**UI 304. Gender and Intimacy (3)**

**UI 300. Drugs and Behavior (3)**

**UI 317. Human Sexuality (3)**

**UI 354. Lifestyle Enhancement (3)**

**UI 430. Aging Successfully: Critical Issues Facing the Individual in the 21st Century (3)**

**UI 444. Americans and Their Institutions. (3)**

## **QUANTITATIVE METHODS (QM)**

**QM 257. Business Statistics.** Statistical methods with business applications emphasis. Includes descriptive statistics, probability, probability distributions, sampling theory, estimation, hypothesis testing, regression, quality and productivity, and ethical considerations. Prerequisites: AD 101; MA 139 with a minimum grade of 'C'. (3)

**QM 352. Management Science.** The application of mathematical techniques to business problems including decision theory, linear programming, queuing theory and forecasting. Prerequisite: QM 257 with a minimum grade of 'C'; junior standing. (3)

**QM 358. Production/Operations Management.** Study of transformation processes and their relevance to all organizations, the value delivery chain and other aspects of the business processes. Prerequisite: QM 352 with a minimum grade of 'C'. (3)

## RECREATION (RC)

**RC 100. Leisure in a Diverse Culture.** Study of leisure and its impact on contemporary culture, diverse populations, and the lives of individuals. (University Studies course) (3)

**RC 112. Introduction to Music Therapy.** Survey of music therapy settings and interdisciplinary professional applications. Emphasis on experiential learning of concepts. (3)

**RC 116. (Cross-listed as HL, PE, SM 116) Special Topics in Health, Human Performance and Recreation.** Special topics in health and leisure unavailable in the department curriculum. May be repeated for credit on different topics. (1-3)

**RC 119. Outdoor Adventure Special Topics.** Special topics in outdoor adventure skills and principles that are unavailable through the department curriculum. May be repeated for credit on different topics. Prerequisite: Consent of instructor. (1-3)

**RC 140. Introduction to Recreation Services.** Historical and philosophical foundations of recreation and leisure profession, influences of recreation and park movements, technological, economic, and community impact on leisure delivery systems. (3)

**RC 150. Outdoor Living Skills.** Introduction to the basics in wilderness camping and backcountry travel skills; emphasis placed on a variety of wilderness environments. (3)

**RC 151. Outdoor Adventure Skills.** Introduction to the basics in outdoor adventure skills; emphasis on rock climbing, mountain biking and canoeing/kayaking. (3)

**RC 210. Camp Leadership.** Organization and administration of camps and principles of camp leadership. (3)

**RC 220. Leadership and Group Dynamics.** Principles and techniques in recreation leadership, leadership theories, and group dynamics. For recreation majors and minors; or by consent of instructor. (3)

**RC 230. Recreational Sports.** Exploration and examination of the recreational sports/intramurals/campus recreation field including philosophy and programming. (3)

**RC 245. Mentoring Principles and Practices.** Introduction to the community service field with emphasis on peer and youth mentoring programs. Focus on successful mentoring skills and exploration of mentoring programs. (3)

**RC 250. Foundations of Outdoor Recreation.** The outdoor recreation movement and the role of

federal, state, and community agencies in response to outdoor recreation demands. (3)

**RC 260. Introduction to Therapeutic Recreation.** Introduction to recreation programming of major agencies serving special populations. (3)

**RC 270. Commercial Recreation.** An overview of the area of commercial recreation and the process of establishing a commercial recreation entrepreneurship. (3)

**RC 288. Practicum in Recreation Services.** Limited observation and extensive hands-on participation as a para-professional in local recreation/park programs. Six hours field work; one hour seminar per week. Prerequisites: RC 140; Recreation major or minor. (3)

**RC 300. Leisure Education.** Students learn concepts and models of leisure education, communication skills, leadership strategies in leisure education, and how to build and maintain helping relationships. Prerequisite: RC 260. (3)

**RC 303 (Cross-listed as HL 303). Research Methods.** Overview of research methods in health and recreation with emphasis on research designs, instrument construction, and basic data management. Prerequisites: HL 111 or RC 140; Health Management or Recreation major. (3)

**RC 304. Therapeutic Recreation: Program Design.** Examination of the process of service delivery in Therapeutic Recreation including client assessment, program planning/evaluation, and client progress/outcomes. (3)

**RC 310. Outdoor Leadership.** Implementing technical and facilitation skills required in the backcountry and evaluating the history, philosophy, and trends in outdoor adventure programming. Prerequisite: RC 150; Recreation major or minor. (3)

**RC 311. Parks and Outdoor Resource Management.** Understanding the philosophy and principles underlying the growth and development of parks and outdoor resource management in terms of historical values and environmental issues. Prerequisite: Junior standing. (3)

**RC 316. (Cross-listed as HL, RC, SM 316) Special Topics in Health, Human Performance and Recreation.** Special topics in health and leisure unavailable in the department curriculum. May be repeated for credit on different topics. (1-3)

**RC 321-323. Independent Study in Recreation.** Topics not included in basic curriculum. (1-3)

**RC 324. Independent Study in Therapeutic Recreation.** An investigation of contemporary issues and problems in therapeutic recreation to include as-

essment, planning and implementing, documentation, organizing and diagnostic grouping. (3)

**RC 345. Youth Development Through Leisure.** Understanding developmental stages of youth and the impact of recreational programs on character, identity, and personal growth. Focus on facilitating changes in leisure behavior. Prerequisite: RC 245. (3)

**RC 360. Therapeutic and Adapted Recreational Services.** Recreation services for special population groups. Prerequisite: RC 260. (3)

**RC 361-363. Independent Study in Health, Human Performance and Recreation.** Directed individual study of special interest areas in health and leisure. (1-3)

**RC 380. Programming for Recreation Services.** Principles of program planning for recreation and park settings. Pre or Co-requisite: RC 288. (3)

**RC 385. Recreational Facilities Planning and Management.** Trends, problems and future directions of facility development, construction and maintenance of recreation and park facilities. Pre or Co-requisite: RC 288. (3)

**RC 386. Aquatic Facility Management.** Development, management and promotion of modern aquatic facilities based on industry standards and guidelines. Preparation for national aquatic management certification. (3)

**RC 405. Trends and Issues in Recreation and Leisure.** Study of current economic and social changes and their influence on leisure pursuits and on the recreation profession. Prerequisites: Junior standing; 15 hours of recreation completed. (3)

**RC 420. Organization and Administration of Recreation Services.** Administration of public recreation and park services provided by municipal, county, and state agencies. Prerequisites: RC 380; RC 385; senior standing. (3)

**RC 440. Facilitation of Group Development.** Applies experiential education theory in group settings. Focus is on designing and facilitating experiences which incorporate critical reflection, problem-solving and decision-making skills. Prerequisite: RC 220. (3)

**RC 450. Outdoor Adventure as Treatment.** Study of the outdoor adventure field and current therapeutic models of outdoor adventure therapy. RC 260; SR 448. (3)

**RC 460. Problems and Issues in Therapeutic Recreation.** An investigation of contemporary issues and problems in therapeutic recreation to include assessment, planning and implementing, documentation, organizing, and diagnostic grouping. Prerequisites:

Completion of 15 hours in recreation; 2.50 overall GPA or 2.75 in RC courses. (3)

**RC 497. Recreation Internship.** Internship with approved professionals in selected recreation/park programs. Experience in all phases of a recreation/park agency operation. Prerequisites: Senior standing; completion of all degree requirements; 2.50 GPA in the major; 2.25 cumulative GPA; faculty advisor's and university's internship supervisor's approval. (12)

## **RELIGION (RS)**

**RS 101. World Religions.** A study of major world religions, including an examination of various definitions and characteristics of religion as exemplified in the histories of religions and their impact on societies. (University Studies course) (3)

**RS 201. New Testament Literature.** A study of the literary genres and historical contexts of the New Testament writings. (University Studies course) (3)

**RS 202. Old Testament Literature.** An historical and critical study of the literature of the Old Testament, using tools of modern biblical scholarship. (University Studies course) (3)

**RS 210. Asian Religions.** A study of religious systems of India, Southeast Asia, China and Japan. (3)

**RS 350. Religious Topics and Issues.** An analysis of specific question areas in religion, such as death and dying, personal immortality, divine foreknowledge. (May be repeated for credit when different topics are offered.) (3)

## **SECONDARY EDUCATION (SE)**

**SE 200. Introduction to Middle and Secondary Education Technology.** An introductory level technology course which allows teacher candidates to explore and gain knowledge about the integration and implementation of technology into P-12 curriculum. (2)

**SE 202. Introduction to Middle and Secondary Education Teaching.** An introductory level course for any student who wishes to explore and investigate teaching as a career in the Middle and Secondary level. (2)

**SE 275. (Cross-listed as EL 274) Diversity in American Schools.** Exploration of race, ethnicity, and gender issues in schooling today. (3)

**SE 300. Technology to Enhance Learning.** An intermediate level integration of methods for implementing current educational technology into the curriculum through project-based learning designed to address specific subject areas. (2)

**SE 301. Fundamentals of Middle School Education.** History, philosophy, organization, and curriculum of middle level schools and the instructional strategies and technology for teaching young adolescents. Prerequisite: Secondary Block I. Co-requisites: SE 305; SE 306; SE 307. (3)

**SE 302. Reading and Writing in Middle School.** A study of reading and writing as tools for learning in the middle school content area. (3)

**SE 305. Secondary Block II Field Experience.** Integration of appropriately designed field experience corresponding with achievement of the MOSTEP standards specified in Secondary Block II coursework. Prerequisite: Block I. Co-requisite: Block II. (2)

**SE 306. Theories of Learning and Management.** Classroom instruction in learning theory and behavior management will be coordinated with instruction of a student in an integrated field experience. Prerequisite: Block I. Co-requisite: Block II (2)

**SE 307. Teaching Reading in Secondary School.** Provides the student with a variety of methods and materials for improving reading skills at the secondary level. Prerequisite: Block I. Co-requisite: Block II. (2)

**SE 308. Fundamentals of High School Education.** History, philosophy, organization, and curriculum of high schools and the instructional strategies and technology for teaching adolescents. Prerequisite: Block I. Co-requisite: Block II. (3)

**SE 311. Techniques of Teaching High School Mathematics.** Methods, materials and trends in secondary mathematics. Prerequisites: Blocks I and II. Co-requisite: Block III. (3)

**SE 312. Curriculum Development and Techniques of Teaching Vocational Home Economics.** Organization, administration, curriculum development and methods of teaching in vocational home economics programs at the elementary, secondary and adult levels. Prerequisites: Blocks I and II. Co-requisite: Block III. (4)

**SE 314. Techniques of Teaching Business and Marketing.** Methods, materials and trends in secondary business education. Prerequisites: Blocks I and II. Co-requisite: Block III. (3)

**SE 316. Techniques of Teaching Technology Education.** Philosophy, methods, materials and trends in technology education. Prerequisites: Blocks I and II. Co-requisite: Block III. (3)

**SE 317. Methods in Agricultural Education.** (3) Introduction to a variety of pedagogical methods commonly used in agricultural education, implementation of cross and co-curricular teaching, and focus on

bringing about full integration of the three sectors of agricultural education. (3)

**SE 318. Techniques of Teaching Secondary Social Studies.** Methods, materials and trends in secondary social studies. Prerequisites: Blocks I and II; SS 300; 48 hours in Social Studies major 3.0 gpa in major courses. Co-requisite: Block III. (3)

**SE 320. Techniques of Teaching Science.** Methods, materials and trends in secondary science. Prerequisites: Blocks I and II. Co-requisite: Block III. (3)

**SE 321. Techniques of Teaching Physical Education.** Methods, materials and trends in secondary school physical education. Prerequisites: Blocks I and II. Co-requisite: Block III. (3)

**SE 322. Techniques of Teaching Foreign Languages.** Methods, materials and trends in foreign language education. Prerequisites: Blocks I and II. Co-requisite: Block III. (3)

**SE 323. Techniques of Teaching Speech and Theatre.** Methods, materials and trends in the teaching of speech communication at the secondary level. Prerequisites: Blocks I and II. Co-requisite: Block III. (3)

**SE 330. Techniques of Teaching - Alternative Certification.** Techniques of teaching for students in the Alternative Certification program. (3)

**SE 370. Secondary Block III: Field Experience.** Students will apply knowledge of professional education, an academic specialization and exceptional children, to appropriate classroom settings. Prerequisites: Blocks I and II. Co-requisite: Block III. (2)

**SE 371. Middle Block III Field Experience-Language Arts.** Students will apply knowledge of professional education, an academic specialization, and the exception child to an appropriate classroom setting. (1)

**SE 372. Middle Block III Field Experience-Math.** Students will apply knowledge of professional education, an academic specialization, and the exception child to an appropriate classroom setting. (1)

**SE 373. Middle Block III Field Experience-Science.** Students will apply knowledge of professional education, an academic specialization, and the exception child to an appropriate classroom setting. (1)

**SE 374. Middle Block III Field Experience-Social Studies.** Students will apply knowledge of professional education, an academic specialization, and the exception child to an appropriate classroom setting. (1)

**SE 460. Practicum.** Professional practicum for students in the Alternative Certification program requiring



classroom teaching under the direction and supervision of site administrators and program coordinator. (6)

**SE 463. Student Teaching Experience I.** Professional practicum requiring demonstration of teaching competencies in school settings under the direction of cooperating teachers and university coordinators. Prerequisites: Senior status; one semester in residence; completion of all required professional education courses; seventy-five percent of academic coursework related to certification; good standing in the Teacher Education program. (6)

**SE 464. Student Teaching Experience II.** Professional practicum requiring demonstration of teaching competencies in school settings. Students teach under the direction of cooperating teachers and university coordinators. Prerequisite: SE 463. (6)

**SE 480. Independent Study in Middle and Secondary Education.** Independent work in a specialized area not covered by regular course offerings. Prerequisite: Consent of Instructor. (1-3)

**SE 500. The Internet in Education.** Study of the internet and its uses in education, including the design of educational web pages and planning of internet-based activities for students. In addition, this course will give students an appreciation for the management issues surrounding the development and use of information technology in education. Prerequisite: SE 300 or consent of instructor. (3)

## **SOCIAL REHABILITATION (SR)**

**SR 444. Treatment Strategies: Alcohol and Drug Abuse.** Orientation to treatment approaches (modalities) relating to alcohol and drug abuse. Individual treatment approaches, family therapy and intervention models as well as selected group treatment approaches will be explored. Prerequisite: Junior standing. (3)

**SR 448. Juvenile Justice Treatment and Intervention Strategies.** An overview of treatment strategies used in juvenile justice programs and an opportunity to observe and participate in actual programs at local agencies. Prerequisites: SW 110; PY 440 or PY 444. (3)

**SR 450. Wilderness Advantage Therapy.** Experiential education in the concepts of wilderness therapy with juvenile and adult offenders. Completion of field expedition qualifies student for certification. (3)

## **SOCIAL STUDIES EDUCATION (SS)**

**SS 200. Introduction to Teaching Social Studies in the Secondary School.** A survey of social studies education, including history, purposes, and the expectations of teachers in this field. (3)

**SS 300. Constructing Curriculum in Secondary Social Studies.** Practical combination of the aims, skills, and knowledge of the history and the social sciences with the best practices derived from pedagogical research for the purpose of constructing meaningful units and courses appropriate for secondary social studies classes. Prerequisite: SS 200; Pre or corequisite: GH 315. (3)

## **SOCIAL WORK (HS, SW)**

**HS 551. Case Management.** An interdisciplinary study of client-driven service coordination with special emphasis on strength-based assessment. Prerequisites: Major in the College of Health and Human Services and senior standing; or consent of instructor. (3)

**SW 103 (Cross-listed as BS 103). Human Biology.** Emphasis on human cell, tissue, and organ system function. Discussions focus on a systems approach to human health and disease. Does not count on any major or minor in Biology Department. (University Studies course) (3)

**SW 110. Introduction to Social Work.** Provides a survey of social work profession and its central ideas, values, methods, and practice settings. (3)

**SW 121. Helping Skills for the Human Services.** Developing interpersonal communication competency through study of verbal communication principles and strategies, helping strategies, and the influence of culture and gender. (University Studies course) (3)

**SW 201. Social and Economic Justice.** Explores social and economic justice with connections to minority status and oppression. (3)

**SW 207. Understanding Cultural and Social Diversity.** Presents knowledge and develops understanding, affirmation, and respect for people from diverse backgrounds within their cultural contexts at the interpersonal level. (University Studies course) (3)

**SW 221. Interviewing Skills for Generalist Practice.** Provides an introduction to basic interviewing skills for generalist social work practice. Prerequisites: SW 110; Social Work major. (3)

**SW 255. Special Topics in Social Work.** Study of specific social work topics and issues. (May be repeated for credit on different topics.) On demand. Prerequisite: SW 110 with a minimum grade of 'C' or consent of instructor. (3)

**SW 242. Statistics for Social Scientists.** Basic descriptive statistics in social science. Central tendency, dispersion, contingency, correlation, regression. Inferential statistics; parametric and non-parametric. (3)

**SW 307. Human Behavior and Social Environment I.** Introduces students to knowledge, theories, and concepts about human behavior with emphasis on individuals and families. Prerequisites: BS/SW 103, PY 101, SO 102, SW 110, SW 201, SW 207, SW 221 each with a minimum grade of 'C'. (3)

**SW 308. Human Behavior and Social Environment II.** Introduces students to knowledge, theories, and concepts about human behavior in the context of groups, organizations, and communities. Prerequisite: SW 307 with a minimum grade of 'C'. (3)

**SW 310. Social Welfare Policies and Services.** Critical analysis and evaluation of social welfare policies and programs/services. Prerequisites: SW 110 and SW 201 with a minimum grade of 'C'; University Studies Political and Economic Systems. (3)

**SW 315. Social Work Intervention.** Explores beginning knowledge and skills needed for providing intervention with individuals, families, groups and social systems. Limited to non-Social Work majors. Prerequisite: SW 110. (3)

**SW 321. Generalist Practice I.** Introduces skills and knowledge for working with individuals in the context of the larger social environment. One 2-hour lecture and one 2-hour lab. Prerequisite: SW 307 with a minimum grade of 'C' or concurrent enrollment; Social Work major. (3)

**SW 322. Generalist Practice II.** Focuses on development and application of intervention skills for generalist social work practice with individuals, families, and groups. One 2-hour lecture and one 2-hour lab. Prerequisite: SW 321 with a minimum grade of 'C'; SW 308 with a minimum grade of 'C' or concurrent enrollment; Social Work major. (3)

**SW 323. Generalist Practice III.** Focuses on development and application of intervention skills in assessment, planning and social change for generalist social work practice with communities. One two-hour lecture and one two-hour lab. Prerequisites: SW 321 and SW 342 with a minimum grade of 'C'; SW 308 and SW 322 with a minimum grade of 'C' or concurrent enrollment; Social Work major. (3)

**SW 342. Methods of Social Research for Generalist Practice.** The application and use of the social scientific method for measuring social work intervention. Prerequisite: SW 242 with a minimum grade of 'C'. (3)

**SW 351. Child Welfare Services.** Examines knowledge and skills required for effective social service delivery to families and to children in day care, foster care or adoptive placement. Prerequisite: SW 110 with minimum grade of 'C' or consent of instructor. (3)

**SW 352. Social Welfare Services to the Aged.** Examines the knowledge and skills required for effective social service delivery to the elderly. Prerequisite: SW 110 with a minimum grade of 'C' or consent of instructor. (3)

**SW 353. Child Development.** Students will learn the physical, cognitive, social and personality changes of development from conception to adolescence. Emphasis will be placed on how abuse/neglect impacts normal development. Prerequisite: SW 110 with a minimum grade of 'C' or consent of instructor. (3)

**SW 354. Crisis Intervention.** Course explores the theory, skills and methodology of crisis intervention with individual, family and community systems. Prerequisite: SW 110 with a minimum grade of 'C' or consent of instructor. (3)

**SW 355. Special Topics in Social Work.** Study of specific social work topics and issues. (May be repeated for credit on different topics.) On demand. Prerequisite: SW 110 with a minimum grade of 'C' or consent of instructor. (3)

**SW 356. Social Work in Mental Health.** Description of the roles, tasks and methodology of social workers in the field of mental health; also providing a basic understanding of diagnostic categories relevant to mental illness and introducing information about treatment strategies. Prerequisite: SW 110 with a minimum grade of 'C' or consent of instructor. (3)

**SW 387-389. Independent Study for Social Work.** Directed individual study of special interest areas in social work. May be repeated for credit. On demand. Prerequisite: Consent of instructor. (1-3)

**SW 449. Social Work Integrative Seminar.** Integrates social work theory with practice using small group discussions. Strengthens practice skills during the student's field practicum. Prerequisites: Completion of all required courses for Social Work major; cumulative GPA of 2.50 or cumulative GPA of 2.25 plus 2.75 GPA in foundation social work courses; senior standing; successful completion of WP 003. (3)

**SW 450. Field Education.** Internship in social service agency for one semester. Opportunity to apply entry level social work generalist practice skills. Agency placements individually arranged. Prerequisites: Completion of all required courses for Social Work major; cumulative GPA of 2.50 or cumulative GPA of

2.25 plus 2.75 GPA in foundation social work courses; senior standing; successful completion of WP 003. Credit/no credit only. (12)

## **SOCIOLOGY (SI, SO)**

**SI 496. Sociology Internship.** Internship with a public or private agency providing first hand experience in the application of sociological skills. Prerequisites: 24 hours in SO courses. (6)

**SO 102. Society, Culture and Social Behavior.** A series of lectures, projects and group discussions analyzing the impact of society and culture on human social behavior. (University Studies course) (3)

**SO 120. Cities and Society.** Analysis of urbanization, including city life and problems, land use patterns, and the future of the city. (University Studies course) (3)

**SO 205. Social Problems in America.** Examines the causes and consequences of societal problems such as crime, delinquency, racism, and poverty. (3)

**SO 240. Interpretation of Data.** A non-mathematical introduction to understanding numerical information as appearing in crime rates, opinion polls, marketing reports, consumer information, and the like. (3)

**SO 242. (Cross-listed as SW 242) Statistics for Social Scientists.** Basic descriptive statistics in social science. Central tendency, dispersion, contingency, correlation, regression. Inferential statistics; parametric and non-parametric. (3)

**SO 305. American Minority Relations.** Description and analysis of ethnic, racial, and religious group relationships. (3)

**SO 360. Criminology.** A survey of crime in America, analyzing lawmaking, lawbreaking, and society's attempts to control and eliminate criminal behavior. (3)

**SO 370. The Family.** Surveys the family as a structure common to all societies, emphasizing needs, changes, dating and mating, sexuality, child rearing, conflict and enrichment. (3)

**SO 375. Collective Behavior.** Examines phenomena such as crowds, publics, fads, fashions, disasters, and social movements. Prerequisite: SO 102 or consent of instructor. (3)

**SO 385. Family Violence.** A sociological analysis of violent behavior among significant others; looks at causes and consequences, prevention and treatment strategies. (3)

**SO 387-389. Independent Study in Sociology.** Directed individual study of special interest areas in sociology. (1-3)

**SO 444. Deviant Social Behavior.** An examination of abnormal behavior as a product of the structure and process of one's social environment. (3)

**SO 495. Senior Seminar.** Students will research and analyze an issue of sociological concern, with emphasis on bringing together theory and method in sociology. (3)

## **SPANISH (SN)**

**SN 001. Spanish Exit Exam.** All majors are required to enroll in this non-credit-bearing exam during their senior year. At the time of the exam, students must present their portfolio containing documents they have been accumulating in their major throughout their undergraduate career. The course number SN 001 will appear on the Degree Audit. Prerequisite: Students must have completed all coursework in Spanish or be in their last year of completing the coursework. (0)

**SN 100. Spanish Language and Culture I.** Acquisition of an appreciation of the culture of Spanish-speaking peoples and study of speaking, understanding, reading, and writing Spanish. (University Studies course) (3)

**SN 120. Spanish Language and Culture II.** Continued study of Spanish speaking peoples through the practice of speaking, understanding, reading, and writing Spanish. Prerequisite: SN 100 or equivalent. (University Studies course) (3)

**SN 200. Spanish Language and Culture III.** Continued study of Spanish language and culture. Cultural, conversational, and structural activities leading to increased proficiency and cross-cultural awareness. Prerequisite: SN 120 or equivalent. (University Studies course) (3)

**SN 220. Hispanic Literature.** Designed to develop the ability to read Hispanic literary texts; to acquaint students with a selection of major Hispanic authors; to introduce the basic concepts of literary analysis; and to increase the ability to speak and understand Spanish through class discussions in Spanish. Prerequisite: SN 200 or equivalent. (University Studies course) (3)

**SN 300. Spanish American Culture.** Introduction to Spanish American Culture, from pre-Colombian culture to the present century. Prerequisite: SN 220. (3)

**SN 301. Intermediate Spanish Composition.** Practice of the written language through the study of style and composition. Prerequisite: SN 220. (3)

**SN 302. Experiencing Spanish Language and Culture.** Sharing a residence hall (one semester) with an international, native Spanish-speaking student. Prerequisites: Limited to non-native, Spanish-speaking

students concurrently enrolled in a Spanish class (200-level or above) living with native Spanish-speaking roommate in designated residence hall; cum. GPA 2.00 or better. (1)

**SN 305. Conversational Spanish.** Practice in the spoken language through class discussions and prepared talks. Prerequisite: SN 220. (3)

**SN 306. Civilization of Spain.** Survey of historical and literary background of Spanish civilization and culture. Prerequisite: SN 220. (3)

**SN 316. Commercial Spanish.** A business and professional course for the practical application of Spanish. Prerequisite: SN 220. (3)

**SN 330. Spanish Grammar.** Review of the elements of Spanish grammar and study of the essential structures of the language. Prerequisite: SN 220. (3)

**SN 400. Special Topics: Spanish.** Designed to cover a variety of knowledge and skills, using a range of topics pertaining to the Spanish-speaking world. Taught in Spanish. May be repeated once for credit. Prerequisite: SN 220. (3)

**SN 402. Independent Study in Spanish.** Advanced-level study of language, culture, or literature for Spanish majors. May be repeated once for credit. Prerequisites: SN 220; consent of department. (3)

**SN 403. Survey of Spanish Literature I.** From the Middle Ages to the 18th century. Prerequisites: SN 220. (3)

**SN 404. Survey of Spanish Literature II.** From the 18th century to the present. Prerequisites: SN 220. (3)

**SN 430. Spanish American Literature I.** Representative authors from the pre-Colombian period to the early 19th century. Prerequisites: SN 220. (3)

**SN 435. Spanish American Literature II.** Representative authors and literary movements from 1888 to present. Prerequisites: SN 220. (3)

**SN 495. Foreign Language Internship in Spanish.** Work experience using Spanish in a professional setting in a business or agency. Prerequisite: declared Spanish major; Junior standing, with completion of a minimum of 24 credit hours in Spanish; minimum 2.50 GPA and 3.00 in Spanish; a level of proficiency in Spanish appropriate to the professional setting as evaluated by the departmental assessment procedures; approval of the Department of Foreign Languages and Anthropology. (3)

## SPORT MANAGEMENT (SM)

**SM 116. (Cross-listed as HL, PE, RC, 116) Special Topics in Health, Human Performance and Recreation.** Special topics in health and leisure unavail-

able in the department curriculum. May be repeated for credit on different topics. (1-3)

**SM 220. Introduction to Sport Management.** Introductory course exploring the history, development, governance, and current status of sport management. (3)

**SM 316. (Cross-listed as HL, RC 316) Special Topics in Health, Human Performance and Recreation.** Special topics in health and leisure unavailable in the department curriculum. May be repeated for credit on different topics. (1-3)

**SM 340. Sport Ethics.** Examination of ethical principles relating to sport specific issues within the context of managing sport services. Prerequisite: PL 204. (3)

**SM 360. Sporting Event Management.** Prepares the prospective sport manager in the management of sport related events. Prerequisites: SM 220; declared Sport Management major or Sport Management minor. (3)

**SM 361-363. Independent Study in Health, Human Performance and Recreation.** Directed individual study of special interest areas in health and leisure. (1-3)

**SM 370. Practicum in Sport Management.** Supervised field experience in a sport agency designed to meet the student's professional interests and goals. Prerequisites: Acceptance to Sport Management major; junior standing. Co-requisites: SM 465; CL004. (2)

**SM 455. Sport-Related Venue Design and Operation.** Design and management of sport related facilities. Prerequisite: SM 360 or consent of instructor. (3)

**SM 460. Fundamentals of Sport Delivery Systems.** Examination of the fundamental theories and practices used to deliver sport products and services to consumers. Prerequisite: SM 360. (3)

**SM 465. Professional Seminar in Sport Management.** Professional expectations and job seeking skills in sport management. Prerequisite: junior standing. Co-requisite: SM 370 or consent of instructor. (1)

**SM 470. Sport Management Internship.** Full-time, supervised field experience in a sport agency designed to meet the student's professional interests and goals. Culminating experience for sport management students. Prerequisites: SM 370 and SM 465 with grade of 'C' or better; senior standing with cumulative GPA of 2.5; GPA in major of 2.5; consent of instructor. (12)

**SM 540. Legal Aspects of Sport and Physical Activity.** Exploration of the various legal principles applicable to the sport industry. Prerequisites: Senior standing; declared Sport Management major or minor or Coaching minor or consent of instructor. (3)

**SM 570. Management and Leadership in Sport Organizations.** Application of contemporary management concepts to the operation of sport organizations. Prerequisite: SM 460 or consent of instructor. (3)

## **TELECOMMUNICATIONS AND COMPUTER NETWORKING (TN)**

**TN 100. Introduction to Computer Networking I.** Focus on setup of personal computer systems, plan and installation of home or small business network, troubleshooting Internet connectivity, resources sharing, home network security, IP addressing. Prerequisite: PC basics. (3)

**TN 101. Introduction to Computer Networking II.** Basic overview of routing and remote access, addressing and security. Introduction of network design, installation, configuration and troubleshoot networking devices, server configuration and backups, WAN connectivity implementation and network performance monitoring. Prerequisite: TN 100. (3)

**TN 254. Fiber Optics and Network Communications.** Principles of fiber optics, system components, applications of fiber optics in data and network communication systems. Prerequisite: ET 245. (3)

**TN 255. Microcomputer Maintenance and Troubleshooting.** A study of the installation and repair of major computer peripherals including printers, disk driver and display. (3)

**TN 275. Network Fundamentals.** Comprehensive overview of networking; from fundamentals to advanced applications and services. The course emphasizes concepts and skills required to design networks, while providing opportunities for practical application and hands-on experience. Topics include data network and the Internet, layered communications, networking models, networking services and protocols. Prerequisite: TN 254. (3)

**TN 375. Network Routing Protocols and Concepts.** Advanced networking course focusing on the purpose, nature, and operations of routers and routing protocols. The course emphasizes IOS installations, configurations and maintenance of routers. Details of routing protocols including both distance vector and link state algorithms. Configuration and troubleshooting of routing protocols in routed networks. Prerequisite: TN 275. (3)

**TN 395. Server Maintenance and Troubleshooting.** Installation and configuration of network operating systems with focus on network com-

munications, server setup, maintenance, troubleshooting, and administration using UNIX, Linux, Windows 2000, NT, and XP network operating systems. Prerequisites: TN 255; TN 275. (3)

**TN 425. Wireless Communications and Mobile Data Networks.** Topic in analog cellular phone systems (AMPS); digital cellular standards – GSM, IS-95; short message service (SMS); 2.5 G data services; cellular standards (CDMA 2000 and WCDMA/UMTS); wireless LANs (IEEE 802.11); Bluetooth, Mobile IP; ad hoc and sensor networks. Prerequisite: TN 275. (3)

**TN 435. Network Security.** Topics in security services, threats, and vulnerabilities for networked environments. Principles of cryptography, security protocol design and analysis, node and service authentication, address spoofing, hijacking, SYN floods, sniffing, viruses, intrusion detection, firewalls, and ethical and legal issues. Prerequisite: TN 375. (3)

**TN 563. Local Area Network Switching.** Switching and operation of networking technologies and protocols. Topics include operation and security configurations of VLAN, trunking, VTP, inter-VLAN routing and layer two networks. Two hours lecture; two hours lab. Prerequisite: TN 275; TN 562. (3)

**TN 565. Network Management.** Design, performance analysis, monitoring, optimization, and troubleshooting of modern data communication networks. Topics include managing TCP/IP networks using SNMP, protocol analysis, remote management, and performance improvement. Two hours lecture; two hours lab. Prerequisite: TN 435. (3)

**TN 566. IP Telephony.** Theories of Voice over IP (VoIP) and data networking. Topics include TCP/IP network, voice packetizing and compression, VoIP protocols and architecture, Quality of Service (QoS) and security of IP telephony systems. Two hours lecture; two hours lab. Prerequisite: TN 563. (3)

## **TESOL (TL)**

**TL 425. Materials and Assessment for English as a Second Language Classroom.** Materials development and adaptation for the ESL/EFL classroom; development of a variety of assessment measures. Prerequisite: TL 585. (3)

**TL 525. English as a Second/Foreign Language: Learning and Teaching.** Basic theories and methods of teaching ESL/EFL. Includes work with ESL students and description of personal theory and method of ESL teaching. Prerequisites: EN 140; any 200-level literature course. (3)

**TL 530. Practicum for Teaching English To Speakers of Other Languages.** Provides students with practical classroom experience in teaching English to Speakers of Other Languages (ESOL). Pre or Co-requisites: TL 525; TL 585. (3)

**TL 585. Methods and Techniques for Teaching ESOL.** Introduces student to techniques for teaching ESOL. Includes work with ESOL students, class observations, and workshop experience. Prerequisites: EN 140; any 200-level Literature course; TL 525; or consent of instructor. (3)

## **THEATRE (TH)**

**TH 100. Theatre Appreciation.** Promotes an appreciation for and an understanding of theatre in contemporary society. Emphasizes the script, artist, audience interaction. (University Studies course) (3)

**TH 101. Acting for Non-Majors.** Acting as a form of self-expression emphasizes personal awareness, relaxation, concentration, coordination and integration, vocal skills, and scene study. (University Studies course) (3)

**TH 105. (Cross-listed as DA 105) Rehearsal and Production I.** Training and practical, hands-on experience in performance, crew work, and all aspects of technical production through active participation in the mounting of departmental productions. May be repeated for credit. (1)

**TH 107. (Cross-listed as MM 107) Theory Skills and Analysis for Musical Theatre.** Development of analytical skills in musical theatre repertoire. (3)

**TH 122. (Cross-listed as MM 121) Class Voice for Musical Theatre I.** Beginning principles of singing and vocal technique for musical theatre. May be repeated for credit. (3)

**TH 155. Makeup.** A study of designing and applying makeup for stage/television/film, including exploration into theory, character analysis, materials, and techniques. Lecture and lab sessions plus production work required. (3)

**TH 218. Acting I.** The first of a three-year Stanislavski-based acting sequence -including theory, exercises, and scene study- for students and TV. Prerequisites: Theatre and Dance major or minor; consent of instructor. May be repeated for credit. (3)

**TH 219. Auditioning.** Explores various audition, cold-reading, and interview techniques, marketing strategies, and solo exercises for actors. (1)

**TH 222. Class Voice for Musical Theatre II.** Intermediate principles of singing and vocal technique

for musical theatre. Prerequisite: TH 122; consent of instructor. May be repeated for credit. (3)

**TH 231. Stagecraft I.** The technical aspects of scenery construction (carpentry, painting, properties, sound, theatre organization, etc.) and lighting, which contribute to a unified approach in producing a play. Lab and production work required. (3)

**TH 245. (Cross-listed as AR/DA/MU 245) Creating and Managing a Career in the Arts.** Introduction to business skills and management practices for success in the visual and performing arts. (3)

**TH 251. Costume Construction.** A study in basic theatre and dance costume construction, including an examination of shop organization, wardrobe maintenance, fabrics, tools, patterns, and sewing techniques. Lecture and lab sessions plus production work required. (3)

**TH 265. Drawing for the Theatre.** The understanding of technical drawing for the theatre. Computer aided and non-computer aided drafting, drawing conventions, tools, symbols, styles, as well as applications. Introduction and manipulation of basic design elements. Prerequisites: TH 231; consent of instructor. (3)

**TH 305. (Cross-listed as DA 305) Rehearsal and Production II.** Advanced laboratory course exploring various areas of performance, crew work, and all aspects of technical production through active participation in the mounting of departmental productions. May be repeated for credit. Prerequisites: Two credit hours of TH 105 and/or DA 105; or consent of instructor. (1)

**TH 307. Musical Theatre Score Study.** Study of musical theatre literature through analysis, guided listening, and performance. Selections from early development to the present will be included. (3)

**TH 316. Acting II.** A continuation of the theories and practices developed in Acting I. Prerequisites: TH 218 (6 hours) or consent of instructor. May be repeated for credit. (3)

**TH 317. Voice for the Stage.** A basic study of vocal mechanics, common vocal problems, proper breathing, and methods of voice improvement for public performance. (3)

**TH 318. Musical Theatre Performance I.** Scene study and exercise course designed to give performers the opportunity to apply singing, acting, and dance technique to musical theatre scripts and scores. Prerequisites: TH 122 (6 hours); TH 218 (6 hours); or consent of instructor. May be repeated for credit. (3)

**TH 319. Acting for Film and Television.** Merges Stanislavski-based technique training with the special demands and techniques of acting in film, television, and other electronic media. (3)

**TH 321. Stage Combat I.** Emphasizes safety, methods of staging, falling and rolling, unarmed stage fighting, and basic stage swordplay. (3)

**TH 322. Class Voice for Musical Theatre III.** Advanced principles of singing and vocal technique for musical theatre. Prerequisite: TH 222; consent of instructor. May be repeated for credit. (3)

**TH 331. Stagecraft II.** Advanced topics in stage technology, including: advanced rigging techniques, production planning, electronic controls, pneumatics, hydraulics, structural design for the stage, welding, and other state-of-the-art technologies. Laboratory required. Prerequisite: TH 265; or consent of instructor. (3)

**TH 350. Stage Lighting I.** Principles of stage lighting, use of equipment, fundamentals of electricity, and design of lighting for the stage. Prerequisites: TH 231; or consent of instructor. (3)

**TH 351. Costume Design I.** Study in problem-solving and design-thinking for costume designers, organized around a study of period fashions. Prerequisites: TH 251; TH 265; or consent of instructor. (3)

**TH 361. Scene Painting.** A study of theatrical painting techniques. Lab and production work required. (3)

**TH 371. Scene Design I.** A study of and application of basic design principles geared to the creation of stage environments for play production. Prerequisite: TH 265; or consent of instructor. (3)

**TH 375. Performing Arts Management.** Study of managerial duties, supervisory responsibilities, and organizational skills necessary in publicity, front of house/box office, and backstage management as it pertains to theatrical and dance production. (3)

**TH 381. Script Analysis.** Investigation and application of contemporary, formal approaches to the criticism and analysis of dramatic literature. (3)

**TH 385. Directing I.** A fundamental course designed to enhance the student's understanding of the practical as well as the artistic skills of directing for the theatre. Prerequisites: TH 218, 231, and 251; or consent of instructor. (3)

**TH 386. Sound Design.** Application of the artistic and technological aspects of theatrical sound design and production. Prerequisite: TH 231 or consent of instructor. (3)

**TH 395. Period and Style.** A survey of historical periods and artistic styles influence on costume and architecture with an emphasis placed on the relevance for theatre and dance designers and director/choreographers. (3)

**TH 416. Acting III.** An advanced scene study course designed to give actors the tools to handle clas-

sical texts or alternative theatrical styles and approaches to acting. Prerequisite: TH 316 or consent of instructor. May be repeated for credit. (3)

**TH 418. Musical Theatre Performance II.** Advanced scene study and exercise course designed to give performers the opportunity to apply singing, acting, and dance technique to musical theatre scripts and scores. Prerequisites: TH 318; or consent of instructor. May be repeated for credit. (3)

**TH 431. Stage Combat II.** Continuation of Stage Combat I emphasizing advanced stage swordplay practice. Prerequisite: TH 321. (3)

**TH 450. Stage Lighting II.** Advanced topics in stage lighting design and technology, including: computer controlled lighting, moving lightings, DMX 512, design software. Laboratory required. Prerequisites: TH 265; TH 350; or consent of instructor. (3)

**TH 451. Costume Design II.** Advanced study in rendering style and problem solving for costume designers, including survey of costume design opportunities in theatre, dance, film, and other venues. Prerequisites: TH 351; or consent of instructor. (3)

**TH 461-463. (Cross-listed as DA 461-463) Independent Study.** Individual study in theatre and dance. (1-3)

**TH 471. Scene Design II.** Advanced study and application of design principles geared toward the creation of stage environments for Shakespearean productions, multi-set plays, musical theatre, and dance. Prerequisite: TH 371; or consent of instructor. (3)

**TH 485. Directing II.** A continuation of the theories and practices developed in Directing I along with an introduction to various styles and alternative directing techniques. Prerequisite: TH 385. (3)

**TH 490. Theatre History I.** Development of drama and theatre from ancient Greece to the English Restoration. (3)

**TH 495. Theatre History II.** Development of drama and theatre from the English Restoration to the contemporary era. (3)

**TH 498. (Cross-listed as DA 498) BFA Project.** The preparation, presentation, and assessment of a major artistic project. Prerequisites: Senior status; and consent of department chair. (2)

**TH 499. (Cross-listed as DA 499) Internship.** Practical involvement in a performing arts company/venue. Course will be graded on a credit/no credit basis. (4)

**See University Studies (UI) listings for description:**

**UI 384. History of the Musical.** (3)

**UNIVERSITY STUDIES (IU, UI)**

**UI 100. First Year Seminar.** An academic skills-centered seminar which introduces students to the University Studies Program and the value of liberal education while addressing one of a variety of themes. See First Year Experience web site for themes (<http://www.semo.edu/firstyearsem>) Required of all students entering the university with fewer than 24 credit hours. (3) (University Studies course)

**IU 300. Cyberlaw.** Provides students with a foundation in law as it relates to business, ethical, political, and international issues focusing on technology and e-commerce. Prerequisites: Junior standing; BL 255, PS 103, PS 104, or CJ 220 with a grade of 'C' or better. (3) (University Studies course)

**IU 301. Historical Perspective: American Agriculture.** Historical development of America's agriculture and the interplay of economic, political, biological and cultural environments of modern America. Prerequisites: Economic Systems; Living Systems; Political Systems. (3) (University Studies course)

**IU 304. Gender and Intimacy.** An analysis and evaluation of societal, behavioral, and cultural influences of gender-related phenomena on women's and men's intimate relationships. Prerequisites: Behavioral Systems; Social Systems. (3) (University Studies course)

**IU 305. Entrepreneurship.** An exploration of innovation, opportunity, and new business creation as economic and personal imperatives for success in the global economy. Prerequisites: Behavioral Systems; Economic Systems; Political Systems; Social Systems. (3) (University Studies course)

**IU 306. Perspectives on Urban Design.** Study of the design of the built environment. (3) (University Studies Course)

**IU 309. Writing for Science and Technology.** This course will explore professional literacy by introducing forms, methods, standards, and issues central to scientific and technical writing in academic and workplace environments. (3 credit hours) (University Studies Course)

**UI 300. Drugs and Behavior.** An interdisciplinary coverage of psychoactive drugs from the perspectives of psychopharmacology, history, and criminal justice. (3) (University Studies course)

**IU 301. Managerial Communication Processes.** An examination and application of appropriate managerial communicative techniques for leading others to perform well in various organizational contexts. Prerequisite: SC 105 or equivalent introductory oral communication course. (3) (University Studies course)

**UI 303. The Female Experience.** A seminar studying the past and present experiences of women in diverse cultures to enhance the human experience. Prerequisites: Oral Expression; Written Expression. (3) (University Studies course)

**UI 304. The History and Culture of West Africa.** A study of West African history and culture from ancient times to the present. Prerequisite: Development of a Major Civilization. (3) (University Studies course)

**UI 305. Judicial Reasoning.** A normative and descriptive examination of the role of the courts in contemporary American society via the principles of judicial reasoning. Prerequisites: Junior standing; completion of lower division University Studies core curriculum. (3) (University Studies course)

**UI 306. Film and History.** American film as both historical and literary document from its origins to the present time in feature films, television, and documentaries. Prerequisites: Development of a Major Civilization; Literary Expression. (3) (University Studies course)

**UI 307. Economic Geography.** Examination of economic development for three spatial levels: international, national, and metropolitan from a geographic perspective. Prerequisites: Economic Systems; Social Systems. (3) (University Studies course)

**UI 308. Cultural and Physical Landscapes of the World: A Geographical Analysis.** A geographical analysis of world landscapes utilizing physical, cultural and economical concepts to illustrate complex interrelationships existing between various regions. One two-hour lecture; one two-hour laboratory. Prerequisites: Physical Systems; Social Systems; Economic Systems. (3) (University Studies course)

**UI 309. Crime and Human Behavior.** An interdisciplinary study of the causes and effects of crime and delinquency. Prerequisites: Behavioral Systems; Social Systems. (3) (University Studies course)

**UI 310. The American Musical Experience.** An examination of the musical experience of the American people as manifested in folk, ethnic, jazz, and pop music, and music in the fine art tradition. Prerequisites: Junior standing; ability to read music. (3) (University Studies course)

**UI 312. Perspectives on the Present.** Contemporary issues will be analyzed and placed into historical perspective. Emphasis on use of the historical method for analysis. Prerequisites: Junior standing; Development of a Major Civilization; Social Systems; Behavioral Systems; Written Expression; Oral Expression; or consent of instructor. (3) (University Studies course)

**UI 313. The African-American Experience.** A study of the historical and literary culture of African-



Americans from the slave experience to the twentieth century. Prerequisites: Development of a Major Civilization; Literary Expression. (3) (University Studies course)

**UI 315. Electronics and Computers in Music.**

Theoretical and “hands on” experience with musical applications of electronics and computers. Prerequisites: Junior standing; Artistic Expression, Logical Systems and Natural Systems should be complete. While some experience with music, computers, electronics and acoustics is helpful, classes in these courses are not prerequisites for this course. (3) (University Studies course)

**UI 316. Contemporary Legal Studies.**

This course is an examination of current legal issues and the role of the American legal system in the resolution of those issues. Prerequisite: 45 hours. (3) (University Studies course)

**UI 317. Human Sexuality.**

Study of human sexuality, emphasizing biological, psychological, and sociological aspects. Sexuality issues dealing with critical thinking and valuing will be emphasized. Prerequisites: Living Systems; Behavioral Systems; Social Systems. (3) (University Studies course)

**UI 318. Earth Science: A Process Approach.**

A process-oriented investigation of the interrelationships among the Earth Sciences and their interaction with living systems. One two-hour lecture and one two-hour lab per week. Prerequisite: BS 218. (3) (University Studies course)

**UI 319. Science, Technology and Society.**

The impact of technology on individuals and society through critical analysis of selected modern topics using communication and critical thinking skills. Prerequisites: Economics Systems; Social Systems; Physical Systems; Political Systems. (3) (University Studies course)

**UI 320. The Modern Presidency.**

Examination of the modern American presidency from the combined perspectives of history, political science, and speech communication. Prerequisite: Sophomore standing. (3) (University Studies course)

**UI 322. International Political Economy.**

Exploration of the interaction of political and economic forces as it affects international flows of goods, money, investments and technology. Prerequisites: Political Systems; Economic Systems. (3) (University Studies course)

**UI 326. Australian Culture.**

An exploration of the culture of Australia, with emphasis on the forces that have shaped that culture. Prerequisites: Written Expression; Literary Expression; Development of a Major Civilization. (3) (University Studies course)

**UI 330. Experimental Methods in Physics and Engineering I.**

Selected experiments in physics and engineering with emphasis on measurement system design, equipment selection, acquisition and evaluation of data, and written and oral reporting. One lecture and two two-hour labs. Prerequisites: Logical Systems (MA 134 or higher); PH 121 or PH 231. (3) (University Studies course)

**UI 331. Found of Biochemistry.**

Structure and function of amino acids, proteins, lipids, and carbohydrates. Generation and utilization of energy. Prerequisite: CH 342 or consent of instructor. (3) (University Studies course)

**UI 332. Images of Women in Literature.**

Investigation of the views of women which have prevailed and still prevail in literary thought. Prerequisite: EN 140; any 200 level literature course. (3) (University Studies course)

**UI 336. Religion in America.**

An historical study of the social, political and philosophical roles of religion in America. Prerequisites: Suggested completion of the lower division University Studies curriculum or consent of instructor. (3) (University Studies course)

**UI 337. Issues in Modern Architecture.**

Analysis of the interrelational development of issues between twentieth century architecture and European/American civilization. Prerequisites: Artistic Expression or Development of a Major Civilization. (3) (University Studies course)

**UI 339. North American Indians.**

North American Indians through settlement and expansion of the American frontier. Indian lifestyles today. Prerequisite: Social Systems or consent of instructor. (3) (University Studies course)

**UI 340. Housing Perspectives.**

Study of the relationship between humans and the built environment including social, psychological, economic and physical factors. Prerequisites: Behavioral Systems; Social Systems; Economic Systems; Political Systems. (3) (University Studies course)

**UI 341. Victorian Studies.**

Examination of literary, political, and scientific achievements in 19th Century England. Prerequisite: Literary Expression. (3) (University Studies course)

**UI 342. Modern Political Thought.**

A critical analysis and examination of the normative concepts and ethical problems of modern political thought. Prerequisites: Political Systems; Social Systems; Behavioral Systems. (3) (University Studies course)

**UI 343. Transcultural Experience.**

A study of the influence of cultural diversity upon the professions and

major fields, which culminates in a supervised on-site expedition to the country/region of study. Prerequisites: Junior standing. One course in each of at least two of the following 100-200 systems: Behavioral, Social or Living. Study of the language of the selected culture is recommended. (3) (University Studies course)

**UI 344. Plants and Humanity.** The psychological, physiological, and social responses of people to the plants in their environment and the role they play in the improved physical and mental health of individuals as well as communities. Prerequisites: Social Systems; Artistic Expression or Behavioral Systems. (3) (University Studies course)

**UI 345. Nonverbal Communication.** Study of Nonverbal Communication. Areas of study include body language, vocal cues, touching behavior, environmental factors, eye behavior, physical appearance. Prerequisites: Artistic Expression; Oral Expression; Behavioral Systems; Social Systems. (3) (University Studies course)

**UI 347. Living in a Global Society.** To understand and appreciate the interrelatedness of issues confronting the world and find action-oriented approaches to resolving them. Prerequisites: Social Systems; Behavioral Systems. (3) (University Studies course)

**UI 349. Comparative Economic Systems.** How market, mixed, planned and developing economic systems are organized and function to obtain major economic, political and social goals. Prerequisites: Economic Systems; Political Systems. (3) (University Studies course)

**UI 350. Middle East Politics.** A survey of social, economic and international forces that influence politics of Middle Eastern societies with particular emphasis on Egypt, Israel, Syria and Turkey. Prerequisites: Political Systems; Economic or Social Systems. (3) (University Studies course)

**UI 351. Public Opinion Management.** Discussion of basic principles of public relations, publicity and propaganda used by business, political, and non-profit organizations to influence public opinion and communicate with their various publics. (3) (University Studies course)

**UI 352. Medical Ethics.** An examination of the ethical and social issues related to medicine, nursing, and biomedical research. Prerequisites: Junior standing or consent of instructor. (3) (University Studies course)

**UI 354. Lifestyle Enhancement.** An interdisciplinary study of the psychology of health and lifestyle management. Prerequisites: Behavioral Systems; Social Systems. (3) (University Studies course)

**UI 355. Consumer and the Market.** The interdisciplinary study of the application of the critical thinking process to analyze economic, social, behavioral and political actions and interaction of consumers with the market and their use/consumption of those products and services acquired through the market exchange process. Prerequisites: Economic System; Political Systems; Behavioral Systems; Social Systems. (3) (University Studies course)

**UI 357. Early American Political Thought.** A critical historical analysis and philosophical examination of the origins and development of early American political thought articulated in the classic works of significant American political theorists. Prerequisites: Political Systems; Social Systems; Behavioral Systems. (3) (University Studies course)

**UI 358. Foundations of Political Thought.** A critical examination and study of ancient and medieval political thought articulated in the original classic works of significant political philosophers. Prerequisites: Political Systems; Social Systems; Behavioral Systems. (3) (University Studies course)

**UI 359. Consumers: Buying/Having/Being.** Examines consumption behavior with emphasis on the psychological, sociological, cultural, economic, and environmental influences. Reviews importance of products to consumers. Prerequisites: Social Systems and/or Behavioral Systems. (3) (University Studies course)

**UI 360. Recycling and Waste Management.** Exploration of personal, institutional, and societal strategies for dealing with solid and hazardous wastes. Prerequisites: Junior standing; Living Systems; Physical Systems. (3) (University Studies course)

**UI 361. Contemporary Political Theory.** A critical historical analysis and philosophical examination of contemporary political thought and the origins and development of major political ideologies of the late 19th century and 20th century. Prerequisites: Political Systems; Social Systems; Behavioral Systems. (3) (University Studies course)

**UI 362. Contemporary French Culture.** A study of French society since 1945, including attitudes, achievements, institutions, and life styles of the French people. In English. Prerequisites: Development of a Major Civilization; Social Systems. (3) (University Studies course)

**UI 366. Law and Economics.** An analysis of the application of economic principles to all aspects of law including contract law, torts, and criminal law. Prerequisites: EC 101 or EC 215; Political Systems. (3) (University Studies course)

**UI 368. Mind, Meaning and Value.** Investigation of the theories, concepts and methodologies employed in the scientific study of the mind from 1650 to the present. Prerequisite: Completion of lower division University Studies curriculum or consent of instructor. (3) (University Studies course)

**UI 369. Vice and Virtue.** Investigation and analysis of some of the main concepts, issues and problems in moral psychology or character development. Prerequisite: Completion of lower division University Studies curriculum or consent of instructor. (3) (University Studies course)

**UI 370. Media Ethics.** A study of the ethical questions that arise in modern mass media with emphasis on journalism, advertising and entertainment. Prerequisite: Junior standing or consent of instructor. (3) (University Studies course)

**UI 371. Government and Business.** Government regulation of business in the United States with emphasis on differing economic and political perspectives concerning such regulation. Prerequisites: Economic Systems; Political Systems. (3) (University Studies course)

**UI 372. Earthquakes and Society.** Study of earthquakes: their causes, location, interaction with surface material and their effects on human society. The role of the public in seismic safety is examined in terms of both structural and nonstructural hazards in buildings as well as the need for earthquake preparedness. Prerequisites: Physical Systems; Social Systems. (3) (University Studies course)

**UI 373. Earth/Life Through Time.** Reading and evaluating the geologic record of biologic and geologic events, with chronicle of life and earth interaction through time. (3) (University Studies course)

**UI 375. European Film.** Study of major European films and film makers in the context of French, German, and Spanish cultures. Prerequisites: Artistic Expression; Oral Expression; Written Expression; Literary Expression; Development of a Major Civilization; or consent of instructor. (3) (University Studies course)

**UI 378. Physics of Star Trek.** How the universe as we know it compares with the universe of Star Trek and other popular science fiction. Prerequisites: CH 180 or CH 181 or CH 185 or higher; EN 140 or PL 115; MA 134 or higher; PH 106 or PH 109 or higher; SC 105. (3) (University Studies course)

**UI 382. History and Philosophy of American Mass Media.** An historical investigation of American mass media and the philosophies and concepts underlying their development from colonial to present times. Prerequisite: Completion of 45 hours. (3) (University Studies course)

**UI 384. History of the Musical.** The musical theatre genre is traced via close examination of its origins, evolution, and maturation as a living, contemporary art form. Prerequisites: TH 100; MU 182; or consent of instructor. (3) (University Studies course)

**UI 386. Environmental Health.** Introduction to fundamental scientific factors that affect human and ecosystem health, focusing on disease prevention/control and enhancing environmental quality. Prerequisites: Junior standing; Living Systems (any BI or BS course); Physical Systems. (3) (University Studies course)

**UI 387. Environmental Law and Public Policy.** Introduction to the formulation and provisions of environmental regulations and policies with an emphasis on major federal legislative acts. Prerequisites: Junior standing; Living Systems (any BI or BS course); Physical Systems. (3) (University Studies course)

**UI 390. The Film Musical.** Study of the integrated components of dance, music and theatre in film musicals, placed in their American socio-historical contexts. Prerequisites: One 100- or 200-level University Studies course in dance, music or theatre or consent of instructor. (3) (University Studies course)

**UI 392. The Age of Romanticism.** Examination of the Romantic Movement through an in-depth study of eight masterpieces of Romantic music in the context of their times. Prerequisites: MH 251 and MH 252; or MU 181 or MU 182 by consent of the instructor; or consent of the instructor. (3) (University Studies course)

**UI 393. The Age of Modernism.** This course will examine the phenomenon of Modernism in music and culture through the study of thirteen masterpieces of music in the context of their time. Prerequisites: MM 203 and MM 207; or MU 181 or MU 182 by consent of the instructor; or consent of the instructor. (3) (University Studies course)

**UI 394. Music and Culture 1600-1750.** This course will investigate the development of music from 1600-1750 and its place in the culture of Western Europe. Prerequisites: MH 251 and MH 252 or MU 181 and MU 182 or consent of instructor. (3) (University Studies course)

**UI 396. The Age of Beethoven.** An examination of Beethoven's life and music, and the cultural context in which it developed. Prerequisites: MM 203 and MM 207; or MU 181 or MU 182 by consent of the instructor. (3) (University Studies course)

**UI 397. Music in Medieval and Renaissance Culture.** This course will investigate the development of music between 900 and 1600 and its place in the culture of Western Europe. Prerequisites: MH 251 and

MH 252 or MU 181 and MU 182 or consent of instructor. (3) (University Studies course)

**UI 400. Business and Ethics.** A study of the ethical questions that arise in the context of doing business in modern society. Prerequisites: Senior standing; completion of all lower division University Studies courses; or consent of instructor. (3) (University Studies course)

**UI 401. American Cultural Landscapes: Regional Architecture and Settlement Systems.** Study of American regional landscapes including house types, barns, and other folk structures. Prerequisites: Development of a Major Civilization; Social Systems; Artistic Expression. (3) (University Studies course)

**UI 402. Music in World Cultures.** A study and comparison of the music, instruments, style, and the music-making process of diverse world cultures. Prerequisites: Junior standing; completion of 100, 200, and 300 level University Studies courses; ability to read music; or consent of the instructor. (3) (University Studies course)

**UI 406. Transforming the Female Experience.** Examination of multidimensional issues involved in current actions and potential strategies for transforming the human experience of women. Prerequisites: Oral Expression; Written Expression; UI 303; or consent of the instructor. (3) (University Studies course)

**UI 407. Rational Endeavor.** Study of rationality and its role as a framework for evaluating beliefs, actions and decisions in general. Prerequisite: Completion of University Studies core curriculum. (3) (University Studies course)

**UI 410. Manufacturing Research in a Global Society.** The study of national and international trends in manufacturing and production through the application of research and development techniques. Prerequisite: Completion of University Studies core curriculum. (3) (University Studies course)

**UI 412. American Health Care Systems and Issues.** This course focuses on the full spectrum of the American health care system. This includes the current health care concerns of diverse populations and legal/ethical issues. Prerequisites: Junior standing; completion of 100, 200 and 300 level University Studies courses; or consent of instructor. (3) (University Studies course)

**UI 414. The American Temper: Ideas in Conflict.** An examination of conflict in the religious, social, political, scientific, philosophic, and economic ideas of American civilization. Prerequisites: Junior standing; Literary Expression; Physical Systems, Living Systems, Behavioral Systems, Social Systems, Political Systems or Economic Systems; Development of a Major Civilization. (3) (University Studies course)

**UI 415. Science and Religion.** An integration of scientific and religious knowledge through reading and discussion related to epistemology, origins, and process. Prerequisites: Completion of lower division University Studies curriculum or consent of instructor. (3) (University Studies course)

**UI 416. Planetary Exploration: From Galileo to the Present and Beyond.** Examination of major developments contributing to our understanding of the solar system and their impact on the future of mankind. Prerequisite: Completion of the University Studies core curriculum. (3) (University Studies course)

**UI 418. European Mind.** An examination of the origin and development of modern European thought and culture. Prerequisites: Junior standing; Artistic or Literary Expression; Physical or Living Systems; Social or Political Systems; Development of a Major Civilization. (3) (University Studies course)

**UI 422. Scientific Reasoning.** Critical study of the reasoning used in the discovery and justification of scientific theories. Prerequisite: Completion of the University Studies core curriculum. (3) (University Studies course)

**UI 423. Political Communication.** The study of the exchange of symbols or messages that to a significant extent have been shaped by or have consequences for the functioning of political systems, i.e., an examination of the relationship between communication processes and political processes. Prerequisites: SC 105; PS 103 or PS 104; or consent of instructor. (3) (University Studies course)

**UI 425. Persuasion: Understanding, Practice and Analysis.** Principles, techniques and theories used to influence the behavior of others through oral communication, with special emphasis on the analytical tools necessary to evaluate persuasive appeals more responsibly. Prerequisites: Junior standing; completion of the University Studies core curriculum. (3) (University Studies course)

**UI 427. Service and Community.** This course provides theoretical investigation of and the opportunity for community service through volunteerism. Includes a one- hour integrated lab. (3) (University Studies course)

**UI 429. Environmental Ethics.** Comprehensive study of the ethical, social, scientific, and cultural problems associated with the use and abuse of natural resources. Prerequisites: Logical Systems; Physical Systems or Living Systems. (3) (University Studies course)

**UI 430. Aging Successfully: Critical Issues Facing the Individual in the 21st Century.** A study of the interaction of historical, economic, and political

influences upon the biological and psychosocial nature of individuals aging into the 21st century. Prerequisites: Natural Systems; Human Institutions. (3) (University Studies course)

**UI 431. Shakespeare's Tragedies and the Human Condition.** An interdisciplinary study of nine plays by Shakespeare as they relate to contemporary issues and events. Prerequisite: Literary Expression. (3) (University Studies course)

**UI 432. Shakespeare's History Plays and Comedies and the Human Condition.** An interdisciplinary study of five history plays and four comedies by Shakespeare. The plays will often be studied in the light of contemporary issues and events. Prerequisite: Literary Expression. (3) (University Studies course)

**UI 433. Aesthetics of Movement: Athletic Dancers and Artistic Athletes.** A critical investigation into the aesthetic difference, function, significance, and value of the movement disciplines of dance and sport. Prerequisite: 45 credit hours. (3) (University Studies course)

**UI 435. Literature of Sport.** The literary and sociological study of the role, both positive and negative, sport plays in American society. (3) (University Studies course)

**UI 436. Agricultural Ethics.** A study of agricultural issues and public policy using knowledge and methods from agriculture and social ethics. Prerequisite: Senior standing. (3) (University Studies course)

**UI 438. The Nature and Growth of Mathematical Thought.** An emphasis on mathematical ideas as a growing, changing human endeavor, which influences the history of societies including today's technological culture. Prerequisites: Development of a Major Civilization; MA 139 or MA 140. (3) (University Studies course)

**UI 440. The Holocaust.** A critical analysis and examination of some of the fundamental political philosophical questions, normative concepts and ethical problems of the Holocaust. Prerequisites: Junior standing; completion of University Studies core curriculum or consent of instructor. (3) (University Studies course)

**UI 443. Professional Experience in Chemistry.** Individualized study of and experience with the effective and appropriate design, execution, and reporting of chemical investigations. Prerequisite: CH 180, CH 181 or CH 185. (3) (University Studies course)

**UI 444. Americans and Their Institutions.** Study of the interdependence between basic psychological processes and the opinions of Americans toward their public institutions. Prerequisites: Natural Systems; Human Institutions. (3) (University Studies course)

**UI 446. The Civil Rights Movement.** A study of the American Civil Rights Movement from the 1950's to the present. Prerequisites: Development of a Major Civilization; Social Systems; Artistic Expression. (3) (University Studies course)

**UI 448. American Revolution Experience.** Study of the American Revolution from the perspectives of the ethnic, cultural and political groups that experienced it. Prerequisites: Development of a Major Civilization; Artistic Expression; Literary Expression. (3) (University Studies course)

**UI 450. Capstone Experience.** Group-based solution of open-ended problems based on cases or scenarios from the "real world," requiring interaction among students with diverse training. Prerequisites: Completion of the University Studies core curriculum; senior standing in one of the disciplines specified for the particular section. Additional prerequisites may be required for particular sections. (3) (University Studies course)

**UI 452. World Historical Geography.** World Historical Geography allows students to explore how political, military, and cultural history is changed by the physical world. Prerequisites: Junior standing; Completion of the University Studies core curriculum, in particular Physical Systems, Literary Expressions and Development of a Major Civilization. (3) (University Studies course)

**UI 454. Perspectives of Literacy: Challenges and Solutions.** A critical examination of variables impacting the development of literacy including perspectives from neuroscience, communication, education, and social science. Prerequisite: Completion of 300-level University Studies requirement. (3) (University Studies course)

**UI 500. History of the English Language.** Origin and development of the English Language, including grammatical forms, principles of sound change, and growth of English vocabulary. Prerequisite: Completion of lower division University Studies core curriculum. (3) (University Studies course)

**UI 501. Principles of Language.** Principles of Language is a study of the nature of language including its systems, role in society, historical and social changes, the development of writing systems, first and second language acquisition process, the biological foundations of language, and artificial or machine languages. (3) (University Studies course)

**UI 503. Age of Alexander the Great.** The civilization and physical geography of the world of Age of Alexander the Great. Prerequisites: Junior standing; Completion of the University Studies core curriculum,

in particular Physical Systems, Literary Expression and Development of a Major Civilization. (3) (University Studies course)

**UI 504. Leaders of Social Change.** A course in rhetorical criticism, exploring how rhetorical theories help us process and appreciate the substance of speeches and the effectiveness of speakers. Prerequisite: Junior standing. (3) (University Studies course)

**UI 505. Health-Related Quality of Life Across the Lifespan.** Critical exploration of "Quality of Life" or overall well-being related to health conditions among pediatric, adult, and geriatric populations across the life span. Prerequisite: Senior standing or completion of a 300-level University Studies requirement. (3) (University Studies course)

## **WOMEN'S STUDIES (WS)**

**WS 100. Introduction to Women's Studies.** (3)

**WS 300. Seminar: Issues in Women's Studies.** (3)

## **WRITING PROFICIENCY (WP)**

**WP 003. 75 Hour Writing Proficiency Exam.**

All students are required to enroll for this test in the next semester after they have completed 75 semester hours. A passing score on this test is required for graduation. Prerequisites: University Studies Written Expression; WP 002.

**NOTE:** Students must present two photo ID's for admission to the testing site.

## **ZOOLOGY (ZO)**

**ZO 200. Animal Biology.** Diversity of animal life with emphasis on invertebrates. Comparison of the major animal phyla emphasizing integration of function and form. Two lectures; one 2-hour lab. Prerequisite: BI 154. (3)

**ZO 315. Comparative Anatomy.** Intensive study of selected organ systems of lower chordates and representative vertebrates. One lecture; two 2-hour labs. Prerequisite: ZO 200. (3)

**ZO 331. Animal Physiology.** Examination of functioning systems of vertebrates. Attention is given to the adaptiveness of these systems and to their integrated functioning. Two lectures; one 2-hour lab. Prerequisites: BI 154; CH 341 and CH 342. (3)

**ZO 414. Developmental Biology.** The differentiation of germ layers into tissues and organs with an emphasis on genetic processes and morphological patterns. Two lectures; one two-hour lab. Prerequisite: BI 381. (3)

**ZO 420. Animal Behavior.** Evolutionary approach to the study of behavior of the individual and group. Topics include proximate and ultimate explanations of behavior. Prerequisites: BI 154; MA 134 or MA 135 or MA 139 or MA 140. (3)

**ZO 430. Invertebrate Zoology.** Invertebrate biology, diversity, phylogeny, structure, life history, development, and additional selected topics in invertebrate zoology. Studio style course. Prerequisites: ZO 200 or consent of instructor. (4)

**ZO 441. Parasitology.** Introduction to parasitism. Protozoans, platyhelminths, and nematodes are stressed, particularly host-parasite relationships and life cycles. One lecture; two 2-hour labs. Prerequisite: BI 154. (3)

**ZO 459. Mammalogy.** Introduction to the ecology, zoogeography, structure/function, evolution, and behavior of mammals. One lecture; two 2-hour labs. Prerequisite: BI 154. (3)

**ZO 460. Herpetology.** An introduction to the biology of the amphibians and reptiles. Evolutionary history, ecology, behavior, physiology, and distribution. Three lectures. Prerequisite: BI 154. (3)

**ZO 465. (Cross-listed as AO 435) Entomology.** Insect biology, behavior, control, structure, diversity, physiology and additional selected topics in entomology. Two lectures; one 2-hour lab. Prerequisite: BI 154 or AO 120 and AY 101 and HO 130. (3)

**ZO 466. Ornithology.** The physical structure, habits, ecology, geographical distribution, physiology, and evolution and conservation of birds. Emphasis on current topics in the scientific literature. Two lectures; one 2-hour lab; one Saturday field trip. Prerequisite: BI 154. (3)

**ZO 469. Vertebrate Adaptations.** Survey of vertebrate adaptations to various environments. Topics include mechanistic and morphological adaptations for feeding, thermoregulation, locomotion, reproduction, and sensory systems. One lecture; two 2-hour labs. Prerequisite: BI 154. (3)

**ZO 478. Ichthyology.** An introduction to the evolution, zoogeography, taxonomy, and ecology of fishes, with particular reference to Missouri fishes. Two lectures; one 2-hour lab. Prerequisites: BI 154; ZO 200. (3)