

# Bowling Green State University

Course descriptions as of 4/1/2004 (effective fall 2004)

## **A&S Arts and Sciences**

A&S 100. Seminar in Arts and Sciences (1-5). On demand. Interdisciplinary studies in arts and sciences or area of study meeting new trends in arts and sciences. May be repeated by consent of dean of the College of Arts and Sciences. Prerequisite: consent of instructor.

A&S 110. Arts BG (3). Fall, Spring. An introduction to arts events at BGSU, including concerts, theatre productions, film, and gallery showings. Emphasis on understanding and valuing artistic performances as a personal as well as community experience. Applicable to the humanities and arts general education requirement.

A&S 200. Seminar in Arts and Sciences (1-5). On demand. Interdisciplinary studies in arts and sciences or area of study meeting new trends in arts and sciences. May be repeated by consent of dean of the College of Arts and Sciences. Prerequisite: consent of instructor.

A&S 250. Great Ideas (3). Fall, Spring. Interdisciplinary seminar on some of the motivating ideas of Western culture: Judeo-Christian heritage, Greek humanism, science, democracy, feminism, etc. Emphasis on reading of primary texts and class discussion. Prerequisite: ENG 112. Applicable to the humanities and arts general education requirement. Approved for web delivery.

A&S 300. Seminar in Arts and Sciences (1-5). On demand. Interdisciplinary studies in arts and sciences or area of study meeting new trends in arts and sciences. May be repeated by consent of dean of the College of Arts and Sciences. Prerequisite: consent of instructor.

A&S 395. Workshop on Current Topics in Arts and Sciences (1-4). On demand. Workshop on current topics and issues within arts and sciences. May be repeated if topics differ, upon approval of program adviser.

A&S 400. Seminar in Arts and Sciences (1-4). On demand. Interdisciplinary studies in arts and sciences area of study focusing on new trends in arts and sciences. May be repeated by consent of dean of the College of Arts and Sciences. Prerequisite: consent of instructor.

A&S 460. Arts Professional Credit Program (1-15). Fall, Spring, Summer. For students enrolled in the arts-professional curriculum who have completed 92 hours and are currently enrolled at a professional school. May be repeated up to 30 hours. Graded S/U only.

A&S 470. Independent Study (1-4). On demand. Supervised individual study to meet student's need for special exploration in areas not covered by regular courses. Specific proposal and permission of adviser and College of Arts and Sciences required prior to enrollment. May be repeated to a maximum of six hours.

A&S 489. Internship (1-12). On demand. Applied experience for students in arts and sciences programs. Specific proposal and permission of undergraduate adviser as well as College of Arts and Sciences required prior to enrollment. Maximum internship credit is 12 hours. Guidelines available in College of Arts and Sciences office. Graded S/U.

## **ACCT Accounting**

ACCT 200. Accounting Concepts for Nonbusiness Students (3). Fall, Spring, Summer. Accounting concepts and procedures and their contribution to

administrative processes. Enterprise analysis, relevant data, its uses and limitations. Not applicable to preprofessional core requirements in the College of Business Administration. No credit allowed toward BSBA degree. Prerequisite: sophomore standing or consent of department.

ACCT 221. Accounting and Business Concepts I (3). Fall, Spring, Summer. Concepts and issues of organizational reporting are introduced within the context of financial and managerial accounting, systems, taxation and auditing, and are illustrated through the use of examples involving international and domestic businesses, non-profit and government organizations. The course is designed to enhance group dynamics, communications skills, use of electronic media and inquiries into ethics and values within the accounting environment. Prerequisite: sophomore standing or consent of the department.

ACCT 222. Accounting and Business Concepts II (3). Fall, Spring, Summer. ACCT 221 continued. Prerequisite: ACCT 221.

ACCT 321. Intermediate Financial Accounting I (3). Fall, Spring. Development and application of financial accounting concepts and generally accepted accounting principles. Preparation of financial statements and accounting for changes in accounting principles. Emphasis on valuation and cost allocation methods for assets and related effects on income statements. Prerequisite: admission to the accounting specialization or consent of department.

ACCT 331. Cost Accounting (3). Fall, Spring, Summer. Cost determination and cost accounting systems. Cost analysis using regression methods. Job order, process, standard, and variable cost systems. Accounting for spoilage, service departments, and joint products. Prerequisites: admission to the accounting specialization and STAT 212, or consent of department.

ACCT 341. Individual Income Taxation (3). Fall, Spring, Summer. History, assumptions, objectives of federal tax system. Determination of an entity's taxable and nontaxable incomes, capital gains and losses, deductions and exemptions, and special provisions. Reporting requirements and determination of tax liability. Introduction to federal tax research methodology. Prerequisite: admission to the accounting specialization or consent of department.

ACCT 422. Intermediate Financial Accounting II (3). Fall, Spring, Summer. ACCT 321 continued with emphasis on long-term liabilities, investments, pensions, leases, earnings per share, and income tax allocation. Prerequisites: admission to the accounting specialization and grade of C or better in ACCT 321, or consent of department.

ACCT 425. Accounting for Governmental and Not-for-profit Entities (3). Study of the unique features of government and not-for-profit accounting. Topics include capital acquisition, budgeting techniques, performance evaluation, and controls of various non-profit-oriented organizations. FASB and GASB reporting requirements relevant to various stakeholders are covered along with typical accounting systems. Prerequisite: ACCT 321 or equivalent.

ACCT 432. Intermediate Managerial Accounting (3). Fall, Spring. Accounting's relationship to planning and control function. Budgeting, corporate planning models, cost-volume-profit analysis, relevant data, capital budgeting, data for operations research models, behavioral considerations, enriched variance systems, evaluation of performance and transfer pricing. Prerequisites: admission to the accounting specialization and grade of C or better in ACCT 331, or consent of department.

ACCT 439. Controllorship (3). Spring. Capstone case study course focusing on the controller's function including: the compliance roles of taxation and financial

reporting, as well as the managerial role of producing information for planning, evaluation and controlling the business firm's activities. Prerequisites: admission to the accounting specialization and grade of C or better in ACCT 432, or consent of department.

ACCT 442. Corporate Income Taxation (3). Determination of taxable income and analysis of reporting requirements related to corporations. Application of federal tax laws to special problems of corporations, including stock redemptions, capital structure, liquidation, corporate acquisitions and corporate accumulations. Prerequisite: admission to the accounting specialization or consent of department.

ACCT 444. Estate Planning (3). Various estate planning tools and techniques. Taxation of transfers effected at death. Taxation of lifetime transfers and generation-skipping transfers. Concepts and computational aspects of federal and state income taxation of estates, trusts and their beneficiaries. Prerequisite: ACCT 341 or equivalent.

ACCT 451. Auditing I (3). Fall, Spring. Auditing principles and procedures for independent verification of financial records and reviews of operations as used by internal auditors and public accountants. Nature of audit evidence, evaluation of internal controls, statistical sampling, computer auditing. Prerequisites: admission to the accounting specialization and grade of C or better in ACCT 460, or consent of department.

ACCT 456. Information Systems Auditing and Control (3). Spring. Basic concepts of information systems audit and control principles necessary to facilitate the expression of an opinion on financial statements; evaluate the effectiveness, security, and functioning of controls; prepare a meaningful management letter. Introduces a computer auditing software package and uses the software to audit computerized information. Prerequisites: C or better in ACCT 460, MIS 421 and MIS 470, or consent of department.

ACCT 460. Accounting Information Systems (3). Fall, Spring. General systems concepts and theory. The collection and processing of accounting information. Internal control aspects of accounting systems. Systems life cycle in an accounting framework. The interface of accounting systems and computer technology. Prerequisites: admission to the accounting specialization, MIS 200 and C or better in ACCT 321 or ACCT 331, or consent of department.

ACCT 489. Internship Seminar (1-3). Fall. To be completed at first opportunity following suitable internship experience. Work experience to be preceded by at least 70 hours of academic credit and advance approval by program coordinator. No credit for students with other internship credit in College of Business Administration. Graded S/U.

ACCT 491. Studies in Accounting (1-3). To be arranged. Investigation in depth of selected areas or contemporary problems. May be offered individually as well as in classes depending on student needs and nature of material. Prerequisite: approval of department.

#### **ACEN Academic Enhancement**

ACEN 100. College Reading/Learning Skills (2-3). Fall, Spring, Summer. Designed to improve basic reading/learning habits of college students' vocabulary, comprehension, notetaking, time management, test taking, analytical and critical thinking. Lab required. Graded A-B-C-no record. Summer 3 hrs.; fall and spring 2 hrs.; Firelands 2-3 hrs. Extra fee.

ACEN 121. Transition Course (1). Transition to University life through orientation to University facilities and options; activities stressing study skills and personal growth.

**ACS American Culture Studies**

ACS 200. Introduction to American Culture Studies (3). Fall, Spring, Summer. Regional, ethnic and economic aspects of American national experience as reflected in verbal, visual and material artifacts. Culture theory and models used to examine selected topics and problems. Required of all American culture studies majors. Applicable to the humanities and arts general education requirement. Approved for web delivery.

ACS 230. Issues in American Civilization (3). Fall, Spring. Characteristically American themes, issues or problems reflecting relationships among ideas, values, traditions, events and personalities. Subject matter designated in schedule of classes; may be repeated once if topics differ. Applicable to the humanities and arts general education requirement.

ACS 250. Cultural Pluralism in the United States (3). Fall, Spring, Summer. Interdisciplinary exploration of race, ethnicity, class, gender and sexual orientation in the United States, emphasizing imaginative expressive forms, such as fiction, poetry, film and the visual arts. Applicable to the cultural diversity in the United States general education requirement. Approved for web delivery.

ACS 252. Indigenous Cultures of North America (3). Fall. Field-based overview of the variety of indigenous North American cultures, both past and present, with emphasis on the use of archaeological record to interpret past lifeways. Focus on each culture's interactions with the physical and biological world. Taught in the field as part of a nine week field/camping trip across the United States. Corequisites: GEOL 250, GEOL 251, and ENVS 253 with permission of instructor. Honors credit optional. Applicable to the cultural diversity in the United States general education requirement.

ACS 300. Interpretations of American Culture (3). Fall, Spring. Such theories as frontier thesis, melting pot, cultural pluralism, regionalism and technocracy, and their imaginative expression. Prerequisite: junior standing or consent of instructor. May be repeated if subject differs. Applicable to the humanities and arts general education requirement.

ACS 338. American Environmental History (3). Fall or Spring. Three centuries of changing American attitudes and actions toward natural environment, rise of conservation movement, and development of ecological perspective. Prerequisite ENG 112. Credit allowed for only one of HIST 338, ACS 338.

ACS 400. The Literature of American Culture Studies (3). Fall, Spring. Interdisciplinary approach to study of American culture. Required of American culture studies majors, but of interest to students who focus on American culture, society, institutions or economics in their particular disciplines. May be repeated once if topics differ. Prerequisite: senior or permission of instructor.

ACS 405. Qualitative Research Methods (3). Fall. Introduces students to modes of qualitative social research commonly found in fields of ethnic studies and American culture studies. Focus on data gathering process as well as data analysis. Credit allowed only for one of ETHN 405, ACS 405.

ACS 499. Capstone Tutorial in American Culture Studies (3). Spring. Independent study in preparation of ACS senior capstone project. Prerequisites: senior standing; tutor must be ACS joint-appointment or affiliated faculty member;

proposal, signed by proposed tutor, must be submitted for approval by undergraduate advisor in American Culture Studies prior to semester in which tutorial begins.

### **ACT Accounting Technology**

ACT 225. Electronic Bookkeeping (3). Use of electronic bookkeeping software including general ledger, accounts payable, accounts receivable, invoicing, payroll, purchase orders, inventory, job cost and fixed assets. Computerized accounting using commercial general ledger packages. Prerequisite: ACCT 221 and MIS 200 or permission of instructor. Offered at Firelands only.

ACT 231. Financial Accounting (3). Theory and application of generally accepted accounting principles as pronounced by the Financial Accounting Standards Board (FASB) and the Securities Exchange Commission (SEC). Designed for the associate of applied business accounting program at Firelands. Prerequisite: ACCT 221. Offered at Firelands only.

ACT 241. Cost Accounting I (3). Theory and application of job-order-cost systems, process cost systems and standard cost systems. Designed for the associate of applied business accounting program at Firelands. Prerequisite: ACCT 222. Offered at Firelands only.

ACT 251. Federal Income Tax (3). Theory and application of federal income tax as applied to the individual, sole proprietorship, partnership and corporation. Designed for the associate of applied business accounting program at Firelands. Offered at Firelands only.

### **AERO Aerospace Studies**

AERO 111. Air Force Organization (2). Fall. Organization of the United States Air Force. Focus on missions involving airlift forces, strategic forces, tactical forces as well as overseas forces. Development and employment of weapons systems and logistic support functions. Leadership laboratory activities.

AERO 112. Air Force Organization (2). Spring. Organization of the United States Air Force. Focus on U.S. Defense policies, military balance between U.S. and eastern European forces as well as capabilities of Army, Navy and Reserve/Guard forces. Officership/professionalism and introduction to flight. Leadership laboratory activities.

AERO 211. Air Force History (2). Fall. Development of air power from the first lighter-than-air vehicles through to the establishment of the Department of the Air Force as an independent military force. Various concepts of employment of air power and factors which have prompted research and technological change. Examples of impact of air power on strategic thought. Leadership laboratory activities.

AERO 212. Air Force History (2). Spring. Development of air power since the establishment of the independent Air Force to the present. Various concepts of employment of air power and factors which have prompted research and technological change. Examples of impact of air power on strategic thought. Leadership laboratory activities.

AERO 311. Air Force Management (3). Fall. Integrated management course emphasizing individual as a leader in the Air Force. Human behavior, individual and in groups, historical development of management thought, discussion of classical leadership theory; oral and written communication, military writing and briefing formats. Leadership laboratory activities. Prerequisite: departmental approval.

AERO 312. Air Force Management (3). Spring. AERO 311 continued. Air Force leadership, planning, organizing, coordinating, directing and controlling functions of management with emphasis on Air Force application, concept of command and staff, junior officer as administrative leader, Air Force personnel system, management of change, managerial strategy in changing environment. Leadership laboratory activities. Prerequisite: departmental approval.

AERO 411. American National Security (3). Fall. Role of the President, the Congress and National Security Council in national security policy making; American defense strategy; alliances; regional security; arms control. Leadership laboratory activities. Prerequisite: departmental approval.

AERO 412. American National Security (3). Spring. Air Force officer as part of national security forces; military law; laws of armed conflict; the military profession; transition to military life; relations with civilian community. Leadership laboratory activities. Prerequisite: departmental approval.

AERO 491. Air Force Issues (1-3). On demand. In-depth study of selected topics. Offered to individuals in lecture, seminar or independent study depending on student needs and nature of the material. May be repeated twice for up to six hours. Contact hours one to three hour/week. No special fees. Departmental permission required.

#### **AERT Aviation Studies**

AERT 099. Flight Evaluation (). Student flight competency evaluation. Prerequisite: consent of instructor. May be repeated. Extra fee.

AERT 220. Private Pilot Ground School (4). Fall, Spring, Summer. Aerodynamics, aircraft systems, charts, airports, communication procedures, meteorology, regulations, aviation publications, flight computer, medical facts, radio navigation and cross country flight planning. FAA Private Pilot-Airplane written exam must be passed to receive course credit.

AERT 222. Private Pilot Flight Instruction I (2). Fall, Spring, Summer. Initial FAR Part 141 Private Pilot-Airplane basic flight training maneuvers and instruction through solo flight. Includes supplemental ground instruction. Prerequisite: AERT 220, AERT 224, or concurrent enrollment. Extra fee.

AERT 223. Private Pilot Flight Instruction II (2). Fall, Spring, Summer. Completion of requirements for Private Pilot-Airplane under FAR Part 141. Includes cross country flight requirements. Additional one hour per week arranged evening lecture is required. Prerequisites: AERT 220, AERT 222, AERT 224 or concurrent enrollment. Extra fee.

AERT 224. Air Traffic Control and the National Airspace System (3). Fall, Spring. A study of the nation's air traffic control system. Focus on basic air traffic control procedures and regulations, FAA control facilities, FSS services, radio communication and navigation principles, safety, and new developments. Prerequisite: none.

AERT 240. Air Transportation (3). Fall, Spring. History, regulation and administration of air transportation system. Emphasis on air carrier, air taxi, corporate and general aviation. Prerequisite: none.

AERT 280. Instrument Ground School (3). Fall, Spring. Instrument flight planning, meteorology, approach procedures, approach chart interpretation and instrument flight communications. FAA Instrument-Airplane written exam must be passed to receive course credit. Prerequisites: AERT 223 and AERT 224, concurrent enrollment in AERT 281 or AERT 282, or prior consent.

AERT 281. Basic Instrument Flight Instruction (3). Fall, Spring, Summer. First course in a sequence offering approximately half of the PIC cross country flight and dual basic instrument flight instruction required for the FAR Part 61 Instrument-Airplane rating or FAR Part 141 Commercial Pilot-Airplane certificate with Instrument-Airplane rating. Prerequisites: AERT 223, AERT 280 or concurrent enrollment. Extra fee.

AERT 282. Advanced Instrument Flight Instruction (3). Fall, Spring, Summer. (Formerly AERT 403). Second course in a sequence offering additional solo cross country flight and dual advanced instrument flight instruction required for the FAR Part 61 Instrument-Airplane rating or FAR Part 141 Commercial Pilot-Airplane certificate with Instrument-Airplane rating. Prerequisite: AERT 281 or concurrent enrollment. Extra fee.

AERT 320. Commercial Ground School (3). Spring. (Formerly AERT 344). Aerodynamics, aircraft systems, commercial pilot operations, weight and balance, and complex aircraft operation. FAA Commercial Pilot-Airplane written exam must be passed to receive course credit. Prerequisite: AERT 220 or prior consent.

AERT 321. Commercial Flight Instruction (3). Fall, Spring, Summer. (Formerly AERT 346). Aerodynamics, aircraft systems, commercial pilot operations, weight and balance, and complex aircraft operations. FAA Commercial Pilot-Airplane certificate must be obtained to receive course credit. Prerequisite: AERT 282 and AERT 320 or concurrent enrollment. Extra fee.

AERT 348. Airport Operation (3). Spring. Current practices in the operation, maintenance, management and safety of air carrier airports including certification, security, emergency operations and fuel handling. Focus on FAR Parts 107 and 139. Reviews organization and operation of major airport facilities. Prerequisite: none.

AERT 349. Aviation Law (3). Spring. A survey of significant aviation legal cases. Includes airport and passenger liability, tariffs, worker's compensation, manufacturers and repairers liability, and national/international aviation legislation and regulation. Prerequisite: none.

AERT 352. Aviation Safety (3). Spring. Presentation and analysis of factors and procedures relating to aviation safety; techniques for accident prevention, development of safety programs, procedures used in accident investigation, the human factor (physiological and psychological), the effect of weather. Prerequisite: GEOG 213 or prior consent.

AERT 354. Aviation Management (3). Fall. An introduction to management and operations in the aviation service industry. The various aspects and issues of small airports, fixed base operators and general aviation are discussed with a focus on current practices and procedures. Prerequisite: MGMT 305, MGMT 360, or AERO 311.

AERT 404. Advanced Aerodynamics and Aircraft Performance (3). Fall. Advanced flight theories including airfoil shape, drag, velocity, lift and thrust, stability and control; advanced principles of performance including capabilities, limitations, design criteria, weight and balance charts, comparative analysis of aircraft and certification of aircraft. Prerequisites: AERT 320 or prior consent.

AERT 405. Advanced Aircraft Systems (3). Spring. In-depth discussion of electrical, mechanical and hydraulic systems on aircraft, design and performance standards, capabilities and limitations, conformance to FAA specification. Prerequisites: AERT 320 or prior consent.

AERT 406. Multiengine Ground School (1). (Formerly AERT 350). Theory of multiengine airplane operation including the ground instruction necessary for preparation for the FAA multiengine rating. Covers transition to multiengine aircraft, multiengine aircraft systems, operational considerations and emergency procedures. Prerequisite: AERT 320.

AERT 407. Multiengine Flight Instruction (1). Summer. Flight instruction in preparation for the FAA multiengine rating. Covers transition to multiengine aircraft and all normal, abnormal, and emergency operating procedures. Prerequisites: FAA Commercial Pilot-Airplane certificate with Instrument-Airplane rating, AERT 406 or concurrent enrollment or prior consent. Extra fee.

AERT 440. Aviation Instructor Ground School (2). Spring. (Formerly AERT 401). Learning theory in an aviation setting, instructor responsibility, lesson planning and advanced aviation problems. To receive credit for this course FAA Fundamentals of Instructing and either Basic Ground Instructor or Flight Instructor-Airplane written exam must be passed. Prerequisite: AERT 320.

AERT 443. Flight Instructor-Airplane (1). Fall, Spring, Summer. Flight instruction preparing the student for FAA Flight Instructor-Airplane certification. The course includes comprehensive coverage of flight maneuvers necessary for instructing private and commercial students. Prerequisites: AERT 440 or concurrent enrollment, and FAA Commercial Pilot-Airplane certificate. Extra fee.

AERT 445. Flight Instructor-Instrument (1). Fall, Spring, Summer. Covers ground and flight instruction necessary to complete requirements for a flight instructor-instrument rating. The course includes presentation of methodology used in teaching instrument flight. Prerequisites: Instrument rating and FAA Flight Instructor-Airplane rating. Extra fee.

AERT 447. Flight Instructor-Multiengine (1). Summer. Principles and methodology of teaching multiengine flight. The course includes ground and flight instruction required to prepare for the FAA Flight Instructor-Airplane Multiengine rating. Prerequisites: FAA Flight Instructor-Airplane and instrument ratings, AERT 406 and AERT 407 or concurrent enrollment. Extra fee.

AERT 456. Airport Planning and Design (3). A study of airport master planning and system planning requirements. Covers detailed aspects of the airport layout plan and airport design criteria. Evaluation is made of passenger and cargo terminal layout, ground access, land use planning and airspace requirements. One and one-half hour lecture and three-hour lab. Prerequisites: DESN 104 or ARCH 105 and DESN 131.

AERT 468. Corporate Airline/Operations (3). Capstone course that integrates a student's knowledge and skill in study of operations and management of corporate or airline company. Focus on assessment and analyses of equipment, human resources, financial, economic and marketing requirements. Prerequisites: AERT 354, MGMT 305 and senior status.

AERT 482. Flight Proficiency (1-3). Provides a specialized dual flight instruction course permitting the student and flight instructor to work on mutually agreed areas of proficiency. Prerequisite: consent of instructor. May be repeated to three hours. Extra fee.

AERT 490. Problems in Aviation Studies (1-3). For advanced students wanting to conduct intensive study of selected problems in aviation studies. May be repeated. Prerequisite: consent of college. Graded S/U.

**AFRS Africana Studies**

AFRS 200. Introduction to Africana Studies (3). Fall, Spring. A collaborative course introducing students to the interdisciplinary methodology, crosscultural perspectives, literary genres, and critical-analysis skills needed to study peoples of African descent. Focus is on the arts and humanities. Applicable to the social sciences and international perspective general education requirements.

AFRS 300. Special Topics in Africana Studies (3). Fall, Spring, Summer. Lectures and seminars on special topics with a focus on Africana themes and issues. Topics reflect research specialties of respective instructors. May be repeated if topics differ. Approved for web delivery.

AFRS 400. Africana Studies Capstone (3). Fall, Spring. Students frame a cross-cultural topic, organize and conduct a research-based, senior-level project and present their findings orally. Completing and reviewing portfolios is the final self-assessment activity for majors.

**AHTH Allied Health Technology**

AHTH 095. Applied Basic Health Science (4). Developmental course in science skills and applied topics in physics, chemistry, and biology. Intended for students entering nursing or allied health programs. Offered only at Firelands College. Credit cannot be applied toward any degree program. Three hours of lecture/discussion and two hours lab. Graded A, B, C/No Record. Students may not co-enroll in this course at the same time as any BIOL or CHEM course at 100-level or above. Offered at Firelands only. Extra fee.

AHTH 100. Nursing Aide Standards (2). Basic nursing care, hygienic care, how to interact with people, health care safety issues. Follows State of Ohio Nursing Aide Training and Competency Evaluation Program Standards and Guidelines, preparing the eligible student to take the state examination to become a nurse aide. 59 hours lecture/lab; 16 hours clinical. Offered at Firelands only.

AHTH 101. Productive Interactions in Health Care (3). Designed for students entering a health-related discipline. Includes basic content in the foundational disciplines that support appropriate interactions in health care environments. Helps to clarify the dynamics of the health professional and patient relationship, enhances self understanding and develops an awareness of the larger societal and health care context in which the relationship takes place. Offered at Firelands only.

AHTH 110. Medical Terminology (2). Vocabulary and terms used by medical personnel; prefixes, suffixes, word roots and their combining forms, usage, spelling and pronunciation; specialized terms within body systems and medical specialties. Two hours lecture. Offered at Firelands only.

AHTH 111. Medical Transcription (2). Skill in use of transcription equipment and expansion of medical terminology and keyboarding skills. Practice in document preparation of medical, clinical and health related reports. One hour lecture and two hours lab. Prerequisites: AHTH 110 and keyboarding proficiency as indicated with a grade of C or better in BUSE 111 or equivalency; CS 180. Offered at Firelands only.

AHTH 130. Basic Microbiology (3). Fundamentals of microbiology; emphasis on morphology, growth, genetics, pathogenic microorganisms and their control. Offered at Firelands only. Extra fee.

AHTH 131. Basic Anatomy and Physiology for Allied Health (5). One-semester course developed especially for students in allied health programs who have had no prior college course in introductory biology. Includes study of structure and

function of cells and tissues, general body organization and organ systems. Does not transfer as biology credit. Three hours of lecture, two hours of lab and one hour of recitation. Offered at Firelands only. Extra fee.

AHTH 132. Applied Physical and Chemical Principles for Allied Health (3). Fall. Designed for the Allied Health Major. Physical and chemical principles and their application to health care technology. Emphasis is placed on managing the interface where patient and technology meet. Two hours lecture, two hours lab per week. Offered at Firelands only.

AHTH 140. Pharmacology for Allied Health (3). General pharmacological principles, including principles of drug action, calculating drug dosages, and a survey of how selected drugs affect body systems. Substance misuse and abuse, over-the-counter and alternative medications, intravenous and nutritional therapy, and miscellaneous agents are also presented. Offered at Firelands only.

AHTH 141. Survey of Pharmacology (1). Spring semester. Study of basic pharmacologic terminology and concepts, drug categories, mechanisms of drug action, forms, routes of administration and common generic and proprietary name medications. Offered at Firelands only.

AHTH 230. Pathophysiology (4). Disordered human functions and systems; language, causes and types of diseases; diseases of the body systems, each described in terms of its etiology, pathology, symptoms and treatment. Four hours lecture. Prerequisite: AHTH 131. Offered at Firelands only.

AHTH 290. Special Topics in Allied Health (1-3). Special topics or current issues in allied health. Prerequisite: permission of instructor. May be repeated up to six credit hours maximum if topics vary. Offered at Firelands only.

#### **AMPD Apparel Merchandising/Product Development**

AMPD 151. Apparel and Textile Industry (3). Fall, Spring. Overview of industry including mills, manufacturers, designers, retailers and impact of technology in producing, distributing, and selling goods. Introduction to product development performed both at the retail and manufacturing levels. Preface to career preparation and internships. Prerequisite: ENG 112.

AMPD 251. Apparel Studio 1: Assembly and Fit (3). Fall, Spring. Understand the processes within the product development model, focusing on the prototype construction process. Understand techniques in assembling garments: shaping, joining and styling details for apparel products. Quality standards emphasized. Application of fit and alteration methods. Prerequisite: AMPD 151. Four contact hours. Extra fee.

AMPD 281. Textiles (3). Fall. Analyze the interrelationships of the chemical and physical properties of fiber, yarn, fabric, and finishes to the performance of the finished product. Identify fabric names and uses. Evaluate fabric performance by durability, aesthetics, comfort, and care factors. Make recommendations about textile problems. Prerequisite: AMPD 151. Extra fee.

AMPD 309. F I T Visiting Student (12-21). Fall, Spring. Enrolled in a one-year FIT Visiting Student Program: either Advertising & Marketing Communications or the Textile Development & Marketing Program. May be repeated. Prerequisite: acceptance into the Fashion Institute of Technology-NYC. Graded S/U.

AMPD 312. Apparel Studio II: Patternmaking (3). Fall. Technical and creative expression in applying patternmaking principles by the flat pattern and/or draping methods. Develop patterns from sketches or photographs. Revise patterns after constructing sample garments. Prerequisite: AMPD 251. Four contact hours. Extra fee.

AMPD 313. Textile Product Analysis (3). Spring. Evaluate apparel and textile products based on production techniques, specifications, and price/quality relationships. Research current issues related to economics, environmental, and consumer needs of textile products. Prerequisites: AMPD 251 and AMPD 281. Extra fee.

AMPD 351. Visual Analysis (3). Fall. Aesthetic analysis of apparel products and retail environments. Application of principles of design. Application of aesthetic principles to professional situations. Prerequisites: AMPD 151 and COOP 050. Extra fee.

AMPD 401. History of Costume (3). Fall. Development of western costume from Egyptian times to present; emphasis on relation of modern costume to earlier forms of dress.

AMPD 402. Merchandising Soft Goods (3). Fall. Merchandiser's role in planning, procuring, distributing, and promoting apparel products in a global market. Emphasis on retail mathematics for developing merchandise plans used to control profits and inventory. Introduction to technology used by merchandisers. Prerequisite: AMPD 151 and MKT 300. Contact Hours: 3.

AMPD 403. Cultural Aspects of Dress (3). Spring. Cultural, sociological and psychological factors influencing clothing habits and identity of individuals and groups are related to their environments. Focus on interpreting meaning and use of dress in personal life, and in lives of others. Analyze dress as communication system.

AMPD 414. Product Development Studio (3). Spring. Private label and product development processes. Develop a total concept for a line of garments, including fabrics, color palette style, construction, with emphasis on research, quality, professional presentation which meet acceptable standards. Prerequisites: AMPD 312 and AMPD 313. Extra fee.

AMPD 440. Computers for Apparel Products (3). Spring. Understand the vital role of technology in the apparel industry and the range of uses including computer-aided design for creating specification sheets, patternmaking, pattern grading, product development processes. Gain skill in AutoCAD software and plotters. Prerequisites: AMPD 312 and Junior Standing. Extra fee.

AMPD 451. Global Issues in Apparel and Textiles (3). Defines the scope and challenges of the apparel and textile industry in the global market. Examines theories, concepts, and problems relating to global trade of apparel and textile products. Prerequisites: AMPD 151, AMPD 281, ECON 200 or higher, and junior standing.

#### **ARAB Arabic**

ARAB 101. Beginning Arabic I (4). Introduction to modern standard Arabic. Four class periods and practice each week.

ARAB 102. Beginning Arabic II (4). ARAB 101 continued. Four class periods and practice each week. Prerequisite: ARAB 101 or equivalent.

ARAB 201. Intermediate Arabic I (4). ARAB 101-102 continued. Conversation, writing, reading, grammar. Four class periods and practice each week. Prerequisite: ARAB 102 or equivalent.

ARAB 202. Intermediate Arabic II (4). ARAB 201 continued. Four class periods and practice each week. Prerequisite: ARAB 201 or equivalent.

## **ARCH Architecture & Environmental Design**

ARCH 105. Design Representation I (3). Fall, Spring, Summer. Fundamental freehand and machine-assisted drawing principles necessary to the investigation, visualization and presentation of design ideas. Drafting methods and techniques including the principles of orthographic projection, paraline and perspective drawing. One hour of lecture and four hours laboratory. Extra fee.

ARCH 205. Design Representation II (3). Fall. Freehand and machine-assisted drawing principles necessary to the investigation, visualization and presentation of design ideas. Paraline and perspective drawing methods, shade and shadow, rendition of value and content, sketching and architectural presentation techniques. One hour of lecture and four hours laboratory. Prerequisite: ARCH 105. Extra fee.

ARCH 222. Design Studio I (3). Spring. Introduction to architecture and environmental design problem solving. Topics include anthropometrics, human-environment interaction, principles of form, style, order, proportion, scale and balance; concepts of programming and diagramming. One hour of lecture and four hours laboratory. Prerequisite: ARCH 205. Extra fee.

ARCH 231. History of Architecture (3). Fall. Survey of architecture in social, cultural, aesthetic, and technical aspects, providing a substantial amount of information and insight about the inheritance of architecture in both practice and theory. Applicable to the humanities and arts and international perspective general education requirements.

ARCH 236. Mechanical and Electrical Building Systems I (3). Fall, Summer. Mechanical and electrical building systems including review of scientific principles used in system design. Topics include equipment description and selection, system types, system components and basic design. Prerequisite: ARCH 105.

ARCH 271. Computer-Aided Design for Architecture (3). Fall, Spring, Summer on demand. Intermediate course emphasizing the role of computer applications, including 2D Computer-Aided Drafting and 3D parametric modeling, in architectural design and presentation as well as in professional practice. Prerequisite: DESN 131. Extra fee.

ARCH 321. Design Studio 2 (6). Fall. Studio course focusing on formal, theoretical, technical, and legal issues in architecture related to site design, interior and exterior spatial relationships, and building form with an emphasis on the influence of site and topography on architectural form. Prerequisite: ARCH 222 (formerly ARCH 250). Extra fee.

ARCH 322. Design Studio 3 (6). Spring. Formal design studio focusing on the design of moderately complex structures emphasizing programming and adjacency analysis, the relationship of building envelope and structure, and the relationship between built form and site. Prerequisite: ARCH 321 (formerly ARCH 307). Extra fee.

ARCH 331. Theory in Architectural Design (3). Spring. Lecture and panel discussion sessions on topics in architectural design theory. Prerequisite: ARCH 222 (formerly ARCH 250), junior standing or permission of instructor.

ARCH 336. Architectural Materials and Systems (3). Fall. Building systems approach to understanding architectural elements of buildings. Topics include fire protection, thermal and moisture protection, coatings, doors and windows, curtain walls, ceiling systems. Two hours lecture and two hours laboratory. Prerequisites: ARCH 236 and junior standing. Extra fee.

ARCH 337. Mechanical and Electrical Building Systems II (3). Spring. A laboratory course investigating applications of mechanical and electrical building systems. Analysis of existing systems, system design, system modeling and report writing. Topics include water and sanitary waste systems, electrical distribution systems, HVAC systems and lighting design. One hour of lecture and four hours of laboratory. Prerequisite: ARCH 236 or permission of instructor. Extra fee.

ARCH 372. Advanced Computer Aided Design for Architecture (3). Spring, Summer on demand. Advanced study focusing on the use of advanced 3D computer modeling, rendering, and animation techniques for development and presentation of architectural design solutions. Prerequisites: ARCH 222 (formerly ARCH 250) and ARCH 271 (formerly ARCH 132) or instructor's permission. Extra fee.

ARCH 401. Historic Preservation (3). Fall. Review of history of building styles, research methods, preparation of historic building inventory forms, principles of restoration and renovation, and architectural design methods for historic environments. One hour lecture and four hours laboratory. Prerequisites: ARCH 222 (formerly ARCH 250) and junior standing.

ARCH 405. Design Representation III (3). Spring. Production of architectural working drawings. Students prepare working drawings for a commercial building. Topics include elements of working drawings, methods of producing documents, scheduling and budgeting work. Four hours lecture and laboratory. Prerequisites: ARCH 105, ARCH 236, ARCH 336 and junior standing.

ARCH 421. Design Studio 4 (6). Fall. Fourth course in architectural design sequence focuses on the study of urbanism and the creation of site-specific architecture. Students study cities in the USA and abroad and then apply architectural concepts to design projects in urban environments. Prerequisite: ARCH 322 (formerly ARCH 301). Extra fee.

ARCH 422. Design Studio 5 (6). Spring. This intensive studio course represents the culmination and recapitulation of all previous courses in degree program: a capstone. This design course pursues a holistic and integrated approach to architectural design. Emphasis is placed on the development by each individual student of a selected design problem. Prerequisites: ARCH 421 (formerly ARCH 450). Extra fee.

ARCH 436. Planning and Design of Industrial Facilities (3). Planning, estimating, design and modeling of industrial facilities with consideration of management, personnel, production, aesthetics and environment. Four hours lecture and laboratory. Prerequisite: ARCH 301.

ARCH 441. Building Systems Technology Seminar (3). Fall, On demand. Capstone course in building systems technology sequence. Student-led discussion on topics related to human performance and building systems. Three hours of seminar. Prerequisite: ARCH 336 or consent of instructor.

ARCH 490. Problems in Architecture/Environmental Design Studies (1-3). On demand. For advanced students wanting to conduct intensive study of selected problems in architecture/environmental design studies. Prerequisite: junior standing and consent of adviser. May be repeated. Graded S/U.

#### **ART Art**

ART 101. Introduction to Art (3). Fall, Spring. Historical and aesthetic components of art with laboratory experiences with basic elements of creative expression. Non-majors only. Two hours studio, two hours lecture. Applicable to the humanities and arts general education requirement. Extra fee.

ART 102. Two-Dimensional Foundations (3). Fall, Spring. Introduction to principles of art through a variety of concepts and media used in creative two-dimensional form organization. Required of art majors and minors. Can be taken with ART 103 or ART 112. Extra fee.

ART 103. Drawing Foundations (3). Fall, Spring. Development of drawing skills through observation of natural objects to aid expressive draftsmanship and pictorial accuracy. Required of art majors and minors. Can be taken with ART 102 or ART 112. Extra fee.

ART 112. Three-Dimensional Foundations (3). Fall, Spring. Creative principles of art in three-dimensional form emphasizing aesthetics, utilitarian concepts and tools in experimental studio experiences. Required of art majors and minors. Can be taken with ART 102 or ART 103. Extra fee.

ART 470. Independent Study (1-3). Supervised individual problems in selected studio research for students who have shown proficiency and marked degree of independence in other studio coursework. May be repeated. Prerequisite: consent of instructor.

ART 489. Internship in Studio (1-3). Fall, Spring. Designed for students to gain field experience working under the guidance of a professional. Will provide students with essential information and skills to help guide them through the completion of the BFA degree. Repeatable to nine hours.

#### **ARTC Art, Digital**

ARTC 201. Introduction to Digital Arts (3). Fall, Spring. General introduction to methods of producing original and creative digital arts including 2D imaging, 3D modeling, rendering, 2D animation, and interactive multimedia. Five studio hours. Prerequisites: ART 102, ART 103, ART 112; may be taken concurrently. Extra fee.

ARTC 311. Intermediate 3-D Modeling (3). Fall, Spring. Concepts and techniques of 3-D computer modeling and rendering. Course includes geometric modeling, surface properties, texturing, lighting, and rendering techniques. Focus on creative idea development using 3-D virtual space. Five studio hours. Prerequisites: ARTC 201, ART 102, ART 103, ART 112 or consent of instructor. Extra fee.

ARTC 312. Intermediate 3-D Digital Animation (3). Fall, Spring. Concepts and techniques of 3-D digital animation. Course includes keyframing, particle systems, dynamic simulation, and basic kinematic techniques as well as principles of traditional animation and concepts development. Five studio hours. Prerequisite: ARTC 311 or consent of instructor. Extra fee.

ARTC 321. Intermediate Digital Imaging Art (3). Fall, Spring. An artistic exploration of 2D paint, image manipulation, and vector based programs using various peripherals such as scanners, tablets, digital cameras, and image capture techniques. Investigation of artistic digital printing technology. Five studio hours. Prerequisites: ARTC 201, ART 102, ART 103, ART 112 or consent of instructor. Extra fee.

ARTC 331. Intermediate Interactive Art (3). Fall, Spring. Basic concepts of digital interactive multimedia art. Emphasis on interactive nonlinear structures and interface design. Creative idea development which integrates image, text, animation, and audio with programming. Five studio hours. Prerequisites: ARTC 321, CS 101 or consent of instructor. Extra fee.

ARTC 400. Special Topics in Digital Arts (1-3). Fall, Spring, Summer. Various topics chosen to meet digital arts curriculum needs. Topics will address issues

related to studio techniques or historical and contemporary theory. Five studio hours. Prerequisites will be announced for each offering. May be repeated to twelve hours. Extra fee.

ARTC 409. Professional Practices and Presentation in Digital Arts (3). Fall. Advanced exploration of artistic direction and career planning. Development of artistic portfolio, professional presentation packages, and post graduation plans. May be repeated to six hours. Five studio hours. Prerequisites: senior standing and ARTC 312, ARTC 321, ARTC 331. Extra fee.

ARTC 413. Advanced Digital Animation Studio (3). Spring and/or Fall. Advanced concepts and techniques of 3-D digital animation. Course includes character animation setup, inverse kinematics, deformations, constraints, expressions, as well as principles of story development and pre-visualization through animatics. May be repeated to six hours. Five studio hours. Prerequisite: ARTC 312 or consent of instructor. Extra fee.

ARTC 423. Advanced Digital Imaging Art Studio (3). Spring and/or Fall. Advanced artistic development using imaging techniques such as digital paint, image manipulation, and digital video. Investigation of artistic image output and representation through print, installation, or time based work. May be repeated to six hours. Five studio hours. Prerequisite: ARTC 321 or consent of instructor. Extra fee.

ARTC 433. Advanced Interactive Art Studio (3). Spring and/or Fall. Creative production of advanced digital interactive multimedia art. Exploration of emerging technologies as well as a more in-depth study of programming and designing artistic interactive experiences. May be repeated to six hours. Five studio hours. Prerequisite: ARTC 331 or consent of instructor. Extra fee.

ARTC 470. Independent Study in Digital Arts (1-3). On demand. Supervised individual problems in selected digital arts studio research for students that have shown technical and artistic proficiency and the ability to work independently in other studio courses. May be repeated to six hours. Prerequisite: consent of instructor. Extra fee.

ARTC 489. Computer Art Practicum (3). On demand. Placement within professional studios to provide opportunities for application of course work. Students work through the Co-op Office to set up internships with employers. May be repeated to six hours. Prerequisite: Consent of division. Graded S/U.

#### **ARTD Art Design**

ARTD 115. Problem Solving Using Technology (3). Fall, Spring. Overview of the visual problem solving process and how it applies to the diverse formats used in technology. Focus is on problem solving that stimulates visual thinking. Includes visual problem solving analysis, freehand sketching and the application of design using vector and raster-based solutions. Five studio hours. May be taken concurrently with ARTD 201.

ARTD 201. Principles of Graphic Design (3). Fall, Spring. Exploration and application of design principles, including organization of space and applying type to enhance the message, tools, techniques, and terminology of the discipline, as well as introduction to design history, visual communication theory and critical thinking. Five studio hours. Prerequisites: BFA majors: ART 102, ART 103, ART 112 and ARTD 115; may be taken concurrently. VCT majors: TECH 280 and VCT 203 or VCT 103 and VCT 104. Extra fee.

ARTD 202. Principles of Typography I (3). Fall, Spring. Introduction to the history and principles of typography. Tools, techniques and typographic

terminology, as well as continued discussion of visual communication theory and critical thinking. Five studio hours. Prerequisite: ARTD 201. Extra fee.

ARTD 301. Principles of Typography II (3). Fall, Spring. Continued study of the history and principles of typography. Further exploration of the tools, techniques and typographic terminology, as well as continued study of visual communication theory and critical thinking. Five studio hours. Prerequisite: successful completion of Portfolio Review and ARTD 202. Extra fee.

ARTD 302. Intermediate Design (3). Fall, Spring. Continued exploration in graphic principles and techniques. Emphasis on sequential communication, editorial design and visual communication for the web. Five studio hours. Prerequisite: ARTD 301 or permission of instructor. Extra fee.

ARTD 303. History of Design (3). Fall, Spring. Survey course covering the history of graphic design from 1850 to present. Exploration of the relationship of graphic design to movements in art, architecture, music, film and literature and the collective influence of these movements on western culture.

ARTD 401. Advanced Design (3). Fall, Spring. Advanced exploration of graphic design principles and techniques. Emphasis on development of alternative methods of generating ideas and visual approaches to complex communication problems. Five studio hours. Prerequisite: ARTD 302. Extra fee.

ARTD 402. Three-Dimensional Design (3). Fall, Spring. Advanced exploration in graphic design principles and techniques with a strong emphasis on three-dimensional design issues. Includes development of packaging, direct mail campaigns and environmental graphics. Five studio hours. Prerequisite: ARTD 302. Extra fee.

ARTD 403. Identity Design (3). Fall, Spring. Creation of an identity program for a new or established company. Development of a comprehensive system of interrelated applications based on in-depth research of company and intended audience(s). Five studio hours. Prerequisite: ARTD 401 or permission of instructor. Extra fee.

ARTD 408. Senior Studio in Design (3). Fall, Spring. Development of skills in preparation for entrance into design profession. Focus on creation of personal identity system, professional resume, sales letters, and interviewing techniques. Refinement of work for inclusion in professional portfolio. Five studio hours. Prerequisite: ARTD 401 and ARTD 402 or permission of instructor. Extra fee.

ARTD 470. Independent Studies in Design (1-3). Supervised individual problem in selected design research for students who have shown proficiency and marked degree of independence in other design coursework. May be repeated. Prerequisite: consent of instructor.

ARTD 489. Design Internship (3-15). Fall, Spring, Summer. Studio experience in chosen area design firm. Credit approved upon submission of portfolio and written description of experience in consultation with firm and school adviser. Maximum of 6 credit hours may be applied to Graphic Design studio art support. May be repeated to 15 credit hours. Prerequisites: 15 hours of design coursework, consent of design faculty.

ARTD 495. Special Topics in Design (1-3). On demand. Innovative and intensive group studies in selected design research. Prerequisites announced for each offering. May be repeated.

## **ARTE Art Education**

ARTE 244. Art for Early Childhood Education (2). Fall, Spring, Summer. Introduction to art education for prekindergarten through third grade, approaches to planning and teaching developmentally appropriate art learning activities in preschool settings and elementary schools. Prerequisite: Sophomore standing. Extra fee.

ARTE 245. Art for Middle Childhood Education (2). Fall, Spring, Summer. Introduction to art education for grades four through eight, approaches to planning and teaching developmentally appropriate art learning activities. Prerequisite: Sophomore standing. Extra fee.

ARTE 252. Foundations of Art Education (3). Fall, Spring. Introduction to historical and contemporary approaches to art education. Includes field experiences in area schools and study of child art development. Prerequisites: Grade of "C" or better in EDHD 201, PSYC 101, ARTH 145 and ARTH 146, sophomore standing and minimum overall GPA of 3.0. C/F hrs.: 40. Extra fee.

ARTE 342. Computers in Art Education (3). Fall, Spring. Digital imaging, multimedia equipment, and the internet to create computer-generated art, visuals, slide programs, art history timelines, and portfolios for instructional use. Emphasis placed on curricular units using computer-based studio activities, mapped internet searches, and digital imaging. Prerequisite: ARTE 252, junior standing, and official admittance into the major. Extra fee.

ARTE 352. Expression and Response in Art Education (3). Fall, Spring. Studio practices and art criticism methods for preschool through young adult learners; introduction to curriculum development and lesson planning; preschool field-based practicum. Prerequisites: ARTE 252, junior standing, and official admittance into the major. C/F hrs.: 40. Extra fee.

ARTE 382. Art for Special Needs Learners (3). Fall, Spring. Art teaching methods for exceptional populations in regular and alternative education settings. Includes a field-based practicum. Prerequisites: junior standing. Additional prerequisites for art ed majors: ARTE 352; 2.5 GPA. C/F hrs.: 40. Extra fee.

ARTE 407. Visual Arts Teaching Practicum (3). Fall, Spring. Implementation of planned curricula, teaching methods, and assessment strategies in School of Art's Saturday Art Program (ages 3-17). Prerequisites: ARTE 342 and ARTE 382. C/F hrs.: 70. Extra fee.

ARTE 452. Advanced Methods in Art Education (3). Fall, Spring. Curriculum development in art criticism, art history, and aesthetics for middle childhood through young adult; includes a related field-based practicum. Assessment, classroom management, curriculum issues. Prerequisites: ARTE 382; 2.5 GPA. May be taken concurrently with ARTE 407. C/F hrs.:20. Extra fee.

ARTE 470. Independent Studies in Art Education (1-3). Supervised individual problems in selected art education research for students who have shown proficiency and marked degree of independence in other art education coursework. May be repeated. Prerequisite: consent of instructor.

ARTE 492. Teaching Internship (7). Fall, Spring. Classroom teaching under supervision on full-day basis at early childhood/middle childhood levels, including conferences and seminars. Required for State multi-age license in visual arts. Eligibility requirements must be met. C/F hrs.: 240. May be repeated. Graded S/U. Extra fee.

ARTE 495. Special Topics in Art Education (1-3). Workshop topics and intensive group studies relative to special needs of visual arts teachers. May be repeated.

ARTE 497. Teaching Internship (7). Fall, Spring. Classroom teaching under supervision on full-day basis at middle childhood/adolescent through young adult levels, including conferences and seminars. Required for State multi-age license in visual arts. Eligibility requirements must be met. C/F hrs.: 240. May be repeated. Graded S/U. Extra fee.

#### **ARTH Art History**

ARTH 145. Western Art I (3). Fall, Spring. Ancient and Medieval art. Applicable to the humanities and arts general education requirement.

ARTH 146. Western Art II (3). Fall, Spring. Art from Renaissance to present. May be taken before ARTH 145. Applicable to the humanities and arts general education requirement.

ARTH 440. Modern Architecture (3). Alternate years. Architecture of 19th and 20th centuries in Europe and America. Prerequisite: junior or senior standing or consent of instructor.

ARTH 441. American Art to the Civil War (3). Fall. Painting, sculpture and architecture of colonial era and United States to 1860; interrelationship between visual arts and significant issues in American culture. Prerequisite: junior or senior standing or consent of instructor.

ARTH 442. American Art Since the Civil War (3). Spring. Painting, sculpture, architecture and photography of United States from 1860 to present. Special attention to artists and developments prior to World War II frequently overlooked in surveys of modern art. Prerequisite: junior or senior standing or consent of instructor.

ARTH 445. Preclassical Art (3). Fall alternate years. Art and archaeology of preclassical Aegean world to the end of the Bronze Age; the Minoan and Mycenaean civilizations. Prerequisite: junior or senior standing or consent of instructor.

ARTH 446. Greek Art (3). Alternate years. Art of Greece from the Dark Ages through the Hellenistic period: emphasis on vase-painting, sculpture and architecture. Prerequisite: junior or senior standing or consent of instructor.

ARTH 447. Art of Etruria and Rome (3). Alternate years. Etruscan and Roman sculpture, architecture and painting from the 8th century B.C. to the 5th century A.C. Prerequisite: junior or senior standing or consent of instructor.

ARTH 448. Early Christian and Byzantine Art (3). Alternate years. Christian art to the medievalization of the Roman empire in the west and Byzantine art to the fall of Constantinople in 1453. Prerequisite: junior or senior standing or consent of instructor.

ARTH 449. Medieval Art (3). Alternate years. Art and architecture from medievalization of Roman Empire through High Gothic period. Prerequisite: junior or senior standing or consent of instructor.

ARTH 451. Art of the Italian Renaissance (3). Alternate years. Painting, sculpture and architecture of Italy during the Renaissance, from the late 13th century through the 16th century and Mannerism. Prerequisite: junior or senior standing or consent of instructor.

ARTH 453. Northern Renaissance Art (3). Alternate years. Painting, sculpture and graphic arts of Flanders, France, Germany, England and Spain during the 15th and 16th centuries. Prerequisite: junior or senior standing or consent of instructor.

ARTH 454. Baroque and Rococo Art (3). Alternate years. The painting, sculpture and architecture of Italy, Spain, France and the Low Countries in the 17th and 18th centuries. Prerequisite: junior or senior standing or consent of instructor.

ARTH 455. Art of the 19th Century (3). Painting and sculpture in the 19th century in Europe from neoclassicism through post-impressionism. Prerequisite: junior or senior standing or consent of instructor.

ARTH 456. Art of the Early 20th Century (3). Fall alternate years. Major movements in painting and sculpture in Europe and America from Fauvism to World War II; theoretical bases as well as formal innovations. Prerequisite: junior or senior standing or consent of instructor.

ARTH 457. Art of the Later 20th Century (3). Spring alternate years. Major movements in painting and sculpture in Europe and America from World War II to the present; traditional art forms as well as the more radical recent developments. Prerequisite: junior or senior standing or consent of instructor.

ARTH 458. Art of India and S.E. Asia (3). Alternate years. Art and architecture in India and S.E. Asia from the earliest times to present. Prerequisite: junior or senior standing or consent of instructor. Applicable to the humanities and arts and international perspective general education requirements.

ARTH 459. Art of China and Japan (3). Alternate years. Art and architecture of China and Japan from earliest cultures to present. Prerequisite: junior or senior standing or consent of instructor. Applicable to the humanities and arts and international perspective general education requirements.

ARTH 460. Women and the Visual Arts (3). Alternate years. Historical survey of the role of women in the fine arts, in their capacities as artists, critics, matrons (patrons) and audiences from antiquity to the present. Emphasis on examining issues relevant to the contemporary situation in the arts and society. Prerequisite: junior or senior standing or consent of instructor.

ARTH 461. Art of Western Africa (3). Fall. Western African art within its cultural, historical, social, and spiritual context. Discussion of a representative range of peoples from a variety of cultures, time periods, and geographic locations. Gives student a better understanding and appreciation of this complex art. Prerequisite: junior or senior standing, or consent of instructor. Applicable to the humanities and arts and international perspective general education requirements.

ARTH 462. Art and Power in Africa (3). Spring alternate years. Exploration of selected African ethnic groups, how they use art to create, manipulate, and negotiate power. Discussions on the political, spiritual, social, economic, and moral manifestations of power and the art that makes it so. Prerequisite: junior or senior standing, or consent of instructor. Applicable to the humanities and arts and international perspective general education requirements.

ARTH 463. Women and Art in Africa (3). Spring alternate years. Discuss the vital role of women--as art producers, consumers, and vendors--in selected ethnic groups across Africa. Will look at art of, for, by, and/or about women, and how these arts are essential to the various cultural groups discussed. Will consider cultural, historical, economic, social, and spiritual aspects, particularly in

relation to ceramics, textiles, sculpture, masking, and body arts. Prerequisite: junior or senior standing or consent of instructor. Applicable to the humanities and arts and international perspective general education requirements.

ARTH 466. Pre-Columbian Art (3). Fall alternate years. Survey of the art and cultures of the peoples of Pre-Columbian Mexico. Pottery and ceramic sculpture, monumental stone carving, precious and semi-precious stone carving, and architecture considered in its social, religious, political, and cultural contexts. Prerequisite: junior or senior standing, or consent of instructor. Applicable to the humanities and arts and international perspective general education requirements.

ARTH 468. Oceanic Art (3). Spring alternate years. Survey of the art and cultures of selected islands in the Pacific Ocean. Will look at sculpture, jewelry, weaponry, household objects, boats, and architecture for clues to these cultures. Prerequisite: junior or senior standing, or consent of instructor. Applicable to the humanities and arts and international perspective general education requirements.

ARTH 470. Independent Studies in Art History (1-3). Supervised individual problems in selected art history research for students who have shown proficiency and marked degree of independence in other art history coursework. May be repeated. Prerequisite: consent of instructor.

ARTH 495. Special Topics in Art History (1-3). Innovative and intensive group studies in selected art historical research. Prerequisites announced for each offering. May be repeated. Prerequisite: junior or senior standing or consent of instructor.

#### **ARTS Art Studio**

ARTS 211. Drawing: The Figure (3). Fall, Spring. Introduction to the theory, practice, and history of drawing the human figure from life. Examine issues pertaining to larger cultural views of the body and seek to create individual meaning in the act of drawing the figure. Five studio hours. Prerequisite: ART 103. Extra fee.

ARTS 221. Introduction to Painting (3). Fall, Spring. Introduction to the theory, practice and history of oil painting. Exploration of painting techniques from the traditional to modern are combined with lectures/demonstrations concerning the use of materials and the basics of color. Five studio hours. Prerequisite: ART 103. Extra fee.

ARTS 231. Introduction to Printmaking (3). Fall, Spring. Introduction to the theory, practice and history of printmaking. Concentration on basic relief, intaglio, and monoprinting methods. Five studio hours. Prerequisites: ART 102 and ART 103. Extra fee.

ARTS 241. Introduction to Photography (3). Fall, Spring. Introduction to the theory, practice and history of black and white photography. Work with 35mm camera is combined with slide lectures and principles of optics, film, cameras, and darkroom techniques. Five studio hours. Prerequisite: ART 102. Extra fee.

ARTS 251. Fibers: 2D/3D Concepts (3). Fall, Spring. Introduces students to the possibilities of fiber and fabric as a medium for both 2D and 3D artistic expression. Techniques and processes explored include discharge, shibori, fabric manipulation, casting and other non-woven construction. Five studio hours. Extra fee.

ARTS 261. Glass I (3). Fall, Spring. Freehand-blown glass formation. Beginning techniques of hot glass manipulation and cold working processes. Introduction to the practice and history of studio glass art. Five studio hours. Extra fee.

ARTS 271. Ceramics I (3). Fall, Spring. Introduction to basic building techniques including wheel throwing, coiling, and slab construction, as well as slip and glaze application and a variety of firing processes. Exposure to historical and contemporary references. Emphasis on personal growth through technique and concept. Five studio hours. Extra fee.

ARTS 280. Introduction to Enameling on Metal (3). Fall. Introduction to the creative implementation of enameling techniques on copper, gold, silver, and steel. Choice of metal or jewelry applications. Five studio hours. Prerequisite: ART 101 or ART 102. Offered at Firelands only. Extra fee.

ARTS 281. Jewelry and Metals I (3). Fall, Spring. Foundation techniques and creative processes including design, fabrication, casting, and surface treatments. Five studio hours. Prerequisites: ART 102 or ART 103 or consent of instructor. Extra fee.

ARTS 291. Modeling and Moldmaking (3). Fall, Spring. Students will accurately render objects in clay, create an abstraction, and be introduced to plaster molds, castings, and simple armature construction. Five studio hours. Prerequisite: ART 112. Extra fee.

ARTS 300. Special Topics 2-D (1-3). On demand. Innovative and intensive group study in selected studio research. Topic will vary with each offering. May be repeated. Prerequisite: BFA standing.

ARTS 301. Special Topics 3-D (1-3). On demand. Innovative and intensive group study in selected studio research. Topic will vary with each offering. May be repeated. Prerequisite: BFA standing.

ARTS 305. 2-D Mixed Media (3). Fall, Spring. Exploration of conceptual issues across a range of media and techniques. Drawing, painting, photography, and printmaking are combined in a cross-disciplinary studio approach. Five studio hours. Prerequisites: Declared B.F.A. 2-D Studies specialization, two of the following: ARTS 211, ARTS 221, ARTS 231, ARTS 241 or by permission of the instructor.

ARTS 312. Drawing: Landscape and Space (3). Fall, Spring. Introduction to the theory, practice, and history of drawing from the visual environment. Work from landscape and architectural motifs as a context for establishing a broadbased understanding of the variety of ways space is transformed into place. Five studio hours. Prerequisite: ARTS 211. Extra fee.

ARTS 313. Drawing: Narrative and Sequence (3). Fall, Spring. Introduction to the theory, practice, and history of narrative and sequential art. Particular emphasis placed on developing an understanding of relationships between time and visual form. Five studio hours. Prerequisite: ARTS 211.

ARTS 322. Painting: Waterbased Media (3). Fall, Spring. Introduction to the theory, practice, and history of waterbased painting, predominately acrylic, gouache and watercolor. Problem solving via traditional and mixed media approaches combined with lecture/demonstrations concerning technical knowledge and the expressive nature of the materials. Five studio hours. Prerequisite: ARTS 221. Extra fee.

ARTS 323. Painting: The Figure (3). Fall, Spring. Introduction to the theory, practice, and history of the use of the figure in paintings. Emphasis on the

ability to organize visual elements and the development of a more personal form of expression via direct observation. Five studio hours. Prerequisite: ARTS 221. Extra fee.

ARTS 324. Painting: Contemporary Concepts and Techniques (3). Fall, Spring. Introduction to varied theories and practices in contemporary painting. Exploration of alternative and non-traditional approaches to painting as a means for self-expression. Five studio hours. Prerequisite: ARTS 221.

ARTS 332. Printmaking: Relief and Monoprinting (3). Alternate semesters. Further exploration of the theory, practice, and history of relief printing using woodblock, linoleum, and found objects. Also includes an exploration of techniques for monoprints and monotypes. Five studio hours. Prerequisite: ARTS 231.

ARTS 333. Printmaking: Etching (3). Alternate semesters. Further exploration of the theory, practice, and history of intaglio techniques to include drypoint, etching, aquatint, collagraph, photo processes, and experimentation with a variety of color inking methods. Five studio hours. Prerequisite: ARTS 231.

ARTS 334. Printmaking: Lithography (3). Alternate semesters. Introduction to the theory, practice, and history of lithography. Techniques include: wet and dry media on stone and plate, and photo processes. Five studio hours. Prerequisite: ARTS 231. Extra fee.

ARTS 342. Photography: Black and White (3). Fall, Spring. Further exploration of theory, practice and history of black and white images. Students will gain more in-depth technical knowledge and a deeper appreciation for the issues involved in the study of photography. The foundation for the students' personal vision will begin with this class. Five studio hours. Prerequisite: ARTS 241. Extra fee.

ARTS 343. Photography: Color (3). Fall, Spring. Introduction to the theory, practice and history of color photography. Concentration on printing color negatives as well as the basics of color negative processing. Exploration of the use of color as a means of personal expression. Five studio hours. Prerequisite: ARTS 241. Extra fee.

ARTS 352. Fibers: Surface Techniques (3). Fall, Spring. Introduces students to traditional and contemporary direct application methods of dyeing and painting on fabric. Technical understanding and creative use of media are stressed. Five studio hours. Extra fee.

ARTS 353. Fibers: Weaving (3). Fall, Spring. Loom controlled weaves, hand controlled weaves, hand manipulated structures, and double weave. Emphasis on materials and creative interpretation of fiber forms. Five studio hours. Extra fee.

ARTS 362. Glass II (3). Fall, Spring. Intermediate-level techniques of freehand blown glass formation. Introduction to glass composition and studio equipment technology. Studio equipment construction. Five studio hours. Prerequisite: ARTS 261. Extra fee.

ARTS 365. Stained Glass I (3). Fall, Spring. Creative use of glass in two- and three-dimensional compositions using the traditional hand cut glass and copper foil techniques. Five studio hours. Prerequisite: ART 102. Extra fee.

ARTS 372. Ceramics II (3). Fall, Spring. Focus on either hand building or throwing techniques. Exposure to historical and contemporary references in the

medium as well as broader art concepts. Emphasis on technical proficiency and personal growth. Five studio hours. Prerequisite: ARTS 271. Extra fee.

ARTS 373. Ceramics III (3). Fall, Spring. Exploration of advanced problems in either pottery or ceramic sculpture. Emphasis on contemporary ceramic issues. Development of personal expression with the material, using a higher level of craftsmanship. Will include documentation of work and beginning development of portfolio. Five studio hours. Prerequisite: ARTS 372. Extra fee.

ARTS 382. Enameling on Metal (3). Fall, Spring. Creative applications of basic enameling techniques are explored for various applications on jewelry and related objects. Five studio hours. Prerequisite: ARTS 280 or ARTS 281. Extra fee.

ARTS 383. Jewelry and Metals II (3). Fall, Spring. Creative and aesthetic applications of casting processes using silver, gold, and bronze in jewelry and related objects. Five studio hours. Prerequisite: ARTS 281. Extra fee.

ARTS 392. Introduction to Carving (3). Fall, Spring. Introduction to the subtraction method using traditional techniques in soft stones such as marble, limestone and alabaster. Five studio hours. Prerequisite: ARTS 291 or consent of instructor. Extra fee.

ARTS 393. Metal Casting (3). Fall, Spring. Introduction to metal casting in bronze, aluminum, and possibly iron, using the lost wax, ceramic shell, and bonded sand techniques. Five studio hours. Prerequisite: ARTS 291. Repeatable to six hours. Extra fee.

ARTS 400. Special Topics 2-D (1-3). On demand. Innovative and intensive group study in selected studio research. Topic will vary with each offering. May be repeated. Prerequisite: BFA standing. Extra fee.

ARTS 401. Special Topics 3-D (1-3). On demand. Innovative and intensive group study in selected studio research. Topic will vary with each offering. May be repeated. Prerequisite: BFA standing. Extra fee.

ARTS 409. Professional Practices and Presentation (1). Fall, Spring. Issues facing the graduating senior in all BFA areas of study. Focus on specific skills required of artists such as resumes, artist statements, slide preparation, marketing and graduate school application. For BFA majors only. Extra fee.

ARTS 414. Advanced Drawing (3). Fall, Spring. Independent and group work in drawing informed by regular discussions, presentations and critiques. Five studio hours. Prerequisites: ARTS 312 and ARTS 313 or by permission of the instructor. Repeatable to six hours. Extra fee.

ARTS 418. Senior Studio in Drawing (3). Fall, Spring. For 2D majors with a specialization in drawing only. Supervised individual research as it applies to the final exhibition of drawings for the BFA degree. Five studio hours. Prerequisite: ARTS 414. Repeatable to six hours.

ARTS 424. Advanced Painting (3). Fall, Spring. This course will allow students to focus on personal style and content. Emphasis will be placed on individual research, the refinement of technical skills and the development of imagery. Five studio hours. Prerequisites: Two of the following: ARTS 322, ARTS 323, ARTS 324 or by permission of the instructor. Repeatable to six hours. Extra fee.

ARTS 428. Senior Studio in Painting (3). Fall, Spring. For 2-D majors with a specialization in painting only. Supervised individual research as it applies to

the final exhibition of painting for the BFA degree. Five studio hours.  
Prerequisite: ARTS 424. Repeatable to six hours. Extra fee.

ARTS 435. Advanced Printmaking (3). Fall, Spring. Advanced study to include individual technical research, the development of personal imagery and the refinement of skills using one or more print media. Five studio hours.  
Prerequisites: Two of the following: ARTS 332, ARTS 333, ARTS 334 or by permission of the instructor. Repeatable to six hours. Extra fee.

ARTS 438. Senior Studio in Prints (3). Fall, Spring. For 2-D majors with a specialization in printmaking only. Supervised individual research as it applies to the final exhibition of prints for the BFA degree. Five studio hours.  
Prerequisite: ARTS 435. Repeatable to six hours. Extra fee.

ARTS 444. Advanced Photography (3). Fall, Spring. Will allow advanced students to focus on ideas in either black and white or color. Emphasis will be placed on individual research, the refinement of technical skills and the development of imagery. Five studio hours. Prerequisites: ARTS 342 and ARTS 343 or by permission of the instructor. Repeatable to six hours. Extra fee.

ARTS 448. Senior Studio in Photography (3). Fall, Spring. For 2-D majors with a specialization in photography only. Supervised individual research as it applies to the final exhibition of photographic prints for the BFA degree. Five studio hours. Prerequisite: ARTS 444. Repeatable to six hours. Extra fee.

ARTS 454. Fibers: Advanced (3). Fall, Spring. Will allow students to create a body of work demonstrating a personal direction. Continued emphasis on perfecting technical skills. Selected readings dealing with issues in fiber art. Five studio hours. Prerequisites: ARTS 352 and ARTS 353 or consent of instructor. Extra fee.

ARTS 458. Senior Studio in Fibers (3). Fall, Spring. For 3D majors with a specialization in fibers only. Supervised individual research as it applies to the final exhibition of fiber works for the BFA degree. Five studio hours.  
Prerequisite: ARTS 454. Repeatable to six hours. Extra fee.

ARTS 463. Glass III (3). Fall, Spring. Advanced-level blown glass formation and cold glassworking techniques. Introduction to mold formed and cast glass processes. An emphasis is placed on interdisciplinary creative work. Studio equipment construction. Five studio hours. Prerequisite: ARTS 362. Extra fee.

ARTS 464. Glass IV (3). Fall, Spring. Creative use of multiple glass working processes developing an aesthetic direction. Focus on personal glass studio development and related technology. Five studio hours. Prerequisite: ARTS 463. Extra fee.

ARTS 468. Senior Studio in Glass (3). Fall, Spring. For 3-D major with a specialization in glass only. Supervised individual research as it applies to the final exhibition of glass works for the BFA degree. Five studio hours.  
Prerequisite: ARTS 464. Repeatable to six hours. Extra fee.

ARTS 474. Advanced Ceramics (3). Fall, Spring. Intended for students planning a career in the ceramics field. Sophisticated techniques of clay, glaze and firing methods. Emphasis on creation of a complex, well researched, aesthetically concise and technically successful body of work. Five studio hours. May be repeated to six hours. Prerequisite: ARTS 373. Extra fee.

ARTS 478. Senior Studio in Ceramics (3). Fall, Spring. For 3D majors with a specialization in ceramics only. Supervised individual research as it applies to

the final exhibition of ceramic works for the BFA degree. Five studio hours. Prerequisite: ARTS 474. Repeatable to six hours. Extra fee.

ARTS 484. Jewelry and Metals III (3). Fall, Spring. Advanced problems in forming and fabrication. Five studio hours. Prerequisite: ARTS 383. Extra fee.

ARTS 485. Jewelry and Metals IV (3). Fall, Spring. Advanced refinement of technical and creative applications in jewelry design and metalsmithing. Five studio hours. Prerequisite: ARTS 484. Extra fee.

ARTS 488. Senior Studio in Jewelry and Metals (3). Fall, Spring. For 3-D majors with a specialization in jewelry and metals only. Supervised individual research as it applies to the final exhibition of jewelry/metals works for the BFA degree. Five studio hours. Prerequisite: ARTS 485. Repeatable to six hours. Extra fee.

ARTS 494. Advanced Technical Carving (3). Fall. Exploration of a variety of technical problems related to stone, including anchoring, pinning, gluing, and joining of dissimilar materials. Five studio hours. Prerequisite: ARTS 392 or consent of instructor. Extra fee.

ARTS 495. Advanced Technical Research in Sculpture (3). Fall, Spring. Advanced sculptural research and development of personal aesthetic direction and expression as it pertains to both the discipline and broad scope of contemporary sculpture. Five studio hours. Prerequisites: ARTS 392 and ARTS 393 or consent of instructor. Repeatable to six hours. Extra fee.

ARTS 498. Senior Studio in Sculpture (3). Fall, Spring. For 3-D major with a specialization in sculpture only. Supervised individual research as it applies to the final exhibition of sculptural works for the BFA degree. Five studio hours. Prerequisite: ARTS 495. Extra fee.

#### **ASIA Asian Studies**

ASIA 180. Asian Civilizations (3). Fall, Spring. This is a core course for all Asian Studies majors and minors. Provides general knowledge of Asia and Asians relative to historical, cultural, social, economic, and political developments of selected countries in East, South, or Southeast Asia. Credit allowed for only one of ASIA 180, HIST 180. Applicable to the social sciences and international perspective general education requirements.

ASIA 480. Senior Project in Asian Studies (3). Fall, Spring. Capstone course for all Asian Studies majors. Meets a requirement for Asian Studies majors to develop specialized knowledge of an Asian country and its people by completing an individualized project with an Asian Studies faculty. Prerequisite: Asian Studies majors and minors, or the consent of the instructor.

ASIA 489. Internship (3-12). Fall, Spring. Designed to help Asian Studies majors and minors develop practical knowledge of an Asian country and its people. Students must complete a work and study project in Asia or at an Asia related organization elsewhere. Prerequisite: JAPN 102 or CHIN 102, or consent of instructor. May be repeated.

#### **ASTR Astronomy**

ASTR 201. Modern Astronomy (3). Fall, Spring, Summer. Recent astronomical discoveries, space travel among planets, birth and death of stars, supernovas, pulsars, black holes, x-ray stars, radio galaxies, quasars, extra-galactic phenomena and origin of universe; some observational work. Applicable to the natural sciences general education requirement. Extra fee.

ASTR 212. The Solar System (3). Fall, Spring, Summer. Planetary, solar and space science. The moon, solar interior and atmosphere, solar/terrestrial relations, planetary structure and atmospheres, comets, asteroids, meteoroids, space exploration, origin of solar system. Some observational work. Applicable to the natural sciences general education requirement. Extra fee.

ASTR 270. Independent Study (1-3). On demand. Introduction to research in physics and astronomy; projects chosen in consultation with adviser. May include library and laboratory work. For lower division students only. Prerequisite: consent of instructor.

ASTR 305. Life in the Universe (3). Spring alternate years. Possibilities for life on other planets and other star systems, methods for communicating with other intelligent life, movement of human life into space. Applicable to the natural sciences general education requirement.

ASTR 307. Understanding the Cosmos (3). Spring alternate years. The universe as a whole, gravity, black holes, structure of space; other galaxies and the universal redshift, clusters of galaxies and other large-scale structure; big bang and steady state models; the three degree background radiation; first moments of creation. Prior completion of ASTR 201 recommended.

ASTR 309. Observational Astronomy (2). Fall alternate years. Instrumentation and techniques used in making astronomical observations. Includes operation of an astronomical telescope, working knowledge of celestial coordinates, obtaining photographic images of astronomical objects and digital images with data reduction. One hour lecture and two hours laboratory. Open only to majors or minors in physics or astronomy. Prior completion of ASTR 201 strongly recommended. Extra fee.

ASTR 321. Recent Progress in Astronomy (2). Fall alternate years. Pulsar dynamics, gravitational collapse and black holes, galaxies, large-scale structure in the universe, active galaxies and quasars, cosmology. Two lecture-recitations. Prerequisite: PHYS 212; or PHYS 202 and MATH 232. Not open to students with credit for PHYS 321.

ASTR 403. Stellar Structure and Evolution (3). Spring alternate years. Basic data, stellar interiors, theoretical models; advanced evolutionary states; red giants, white dwarfs, neutron stars, supernovas, black holes. Prerequisites: PHYS 301 and consent of instructor. Not open to students with credit for PHYS 403.

ASTR 470. Independent Study in Astronomy (1-3). On demand. Introduction to research in astronomy; projects chosen in consultation with adviser, may include library and laboratory work. Prerequisite: consent of instructor.

#### **BA Business Administration**

BA 101. Special Topics in Business Administration (1-3). Selected topics in business administration not covered in depth by existing courses. Offered in lecture or seminar format. Prerequisites if any depend upon course content. May be restricted to freshmen and/or sophomores. Repeatable if topics differ.

BA 102. Introduction to Business (3). Fall, Spring. Market competition and change, nature and central role of management, our business environment. No credit allowed toward BSBA degree. Credit not allowed for both BA 102 and BA 150.

BA 150. Overview of Business Administration (2). Fall, Spring. Introduction to functional areas and environments of business administration. Knowledge and skill development in accounting, finance, management and marketing. Overview of

legal, economic, ethical and social/cultural aspects of business in domestic and global markets. Freshmen and sophomores only; to be taken for letter grade; credit not allowed for both BA 150 and BA 102.

BA 201. Special Topics in Business Administration (1-3). Selected topics in business administration not covered in depth by existing courses. Offered in lecture or seminar format as a function of student demand or course content. Prerequisites if any depend upon course content. May be restricted to sophomores and/or juniors. Repeatable if topics differ.

BA 203. Business Communication (3). Fall, Spring, Summer. Principles of effective communication in writing business messages such as letters, memos, e-mail, and reports. Primary emphasis on written communication skills for use in business and public organizations with attention given to oral communication skills in business, such as small group and one-on-one communication. Prerequisite: ENG 112. Extra fee.

BA 204. Introduction to Entrepreneurship (3). Introduction to entrepreneurship and its importance to the economy. Study of the entrepreneurial process from conception to birth of a new venture. Concentration on attributes of successful entrepreneurs including opportunity recognition, innovation, venture screening, risk assessment, risk tolerance, identification of resources, and business planning to learn how to turn opportunities into a viable business.

BA 300. Executive Seminar (2). Fall, Spring. Exposure to current issues in business administration via guest lecturers who are visiting executives-in-residence. Students have opportunity to examine a variety of career choices in business and current issues in business management. Graded S/U.

BA 301. Special Topics in Business Administration (1-3). Selected topics in business administration not covered in depth by existing courses. Offered in lecture or seminar format as a function of student demand or course content. Prerequisites if any depend upon course content. May be restricted to juniors and/or seniors. Repeatable if topics differ.

BA 304. Innovation and Creative Thinking (3). Recognizing and creating opportunities, innovation, and passion in pursuit of entrepreneurial ventures. Topics include challenges of fostering creativity, creative problem solving, taking risk, and organizing and managing innovation. Prerequisite: BA 204.

BA 310. Introduction to Hospitality Management (3). Fall. First course in hospitality management curriculum. Scope, structure and economic principles of service management. Operations management considerations for hotels, restaurants and institutional food service. Uniform system of accounts and key operating ratios. Prerequisite: ACCT 221.

BA 325. Organization and Structure of Health Care Services Industry (3). Fall. Broad dimensions and areas of health care services organizations, internal administrative processes; perspectives on comprehensive health planning and policy administration; environmental linkages to community health services agencies.

BA 390. Introduction to Multinational Business (3). Fall, Spring. Environment encountered by U.S. enterprises engaged in businesses abroad; business practices and policies for foreign operations; international organizations. Prerequisite: ECON 200, or ECON 202 and ECON 203.

BA 395. Workshop on Current Topics in Business Administration (1-3). On demand. Selected topics in business administration. May be repeated if topics differ.

BA 396. Workshop on Current Topics in Business Administration (1-3). On demand. Selected topics in business administration. May be repeated if topics differ. No credit allowed toward BSBA degree.

BA 401. Special Topics in Business Administration (1-3). Selected topics in business administration not covered in depth by existing courses. Offered in lecture or seminar format as a function of student demand or course content. Prerequisites if any depend upon course content. May be restricted to juniors and/or seniors. Repeatable if topics differ.

BA 404. New Venture Creation (3). Business venture planning, initiation, and management. Mechanics of starting a business, including opportunity and industry analysis, and entry strategies. Preparation of a business plan. Identification of alternative business models. The course emphasizes entrepreneurship as a planned growth process. Prerequisites: C or better in each of BA 204, FIN 304 and MKT 300.

BA 405. Business Policy and Strategy (3). Fall, Spring, Summer. Capstone course integrating functional areas of business. Strategic management planning process: decision making under uncertainty; external environment; internal strengths and weaknesses of the organization and its competitors; global competition; social responsibility; corporate culture; and values and ethics. Case analysis and simulations. Prerequisites: senior standing; credit for FIN 300, MGMT 300, MGMT 360, MKT 300 and OR 380 and admission to the BSBA program. (May not be taken concurrently with any of the prerequisites.)

BA 420. Health Care Case Problems (3). Spring. Principles of management in the health care organization are explored in depth through the use of case studies. Students have the opportunity to develop a clear understanding of the differences between management in for-profit/non-profit health services organizations versus other organizational models. Emphasis is provided concerning reimbursement, the roles of various health professions and the changes currently taking place in health care management. Prerequisite: BA 325.

BA 429. Health Care Internship (6). Fall, Spring, Summer. Internship in one of following areas of administration: hospital, nursing home, health maintenance organizations, third-party administration, and other health agencies. Prerequisites: BA 325, two courses in the management concentration and approval of adviser. Open only for students in the HCA specialization. Graded S/U.

BA 440. Management of International Operations (3). Spring. Organizational and managerial aspects of multinational enterprises. Topics include foreign market assessment and entry; collaborative, competitive, and growth strategies in foreign markets; headquarters-subsidiary relations; organization design for international operations; and ethics in international business. Integration of functional aspects of multinational enterprises through cases and/or simulation. Prerequisites: senior standing and BA 390.

BA 474. Seminar in Entrepreneurship (3). Economic models of entrepreneurship including fiscal, regulatory and taxation issues. Product-market strategies, new business ventures, existing firm organization structures and capital acquisition. Prerequisites: MKT 300, FIN 300, MGMT 300 and senior status or permission of instructor.

BA 480. Hospitality Management Seminar (3). Spring. Integration of previous coursework in business administration with hospitality management. Unit operating concerns, corporate policy and strategy. Prerequisites: admission to the BSBA program and 800 hours of approved practicum.

BA 489. Business Internship (1-3). No credit for students with other internship credit in the College of Business Administration. Program must be approved in advance by college internship director. Work experience must be completed within last year prior to graduation. Graded S/U.

BA 491. Studies in Business Administration (1-3). On demand. In-depth study of selected areas. Offered to individual student on lecture basis or in seminar depending on student needs and nature of material. May be repeated to six hours.

BA 492. Studies in International Business Administration (1-3). Study of subjects related to international business not otherwise offered in curriculum. Offered to individual student or in seminar depending on student needs and nature of material. May be repeated to six hours.

BA 495H. Reading for Honors in Business Administration (1-3). Fall, Spring, Summer. Supervised, independent program of reading and study. Prerequisites: 3.0 accumulative GPA and consent of department.

#### **BAT Business Administration Technology**

BAT 100. Introduction to Real Estate (2). Foundation for further study and partial preparation for securing a salesperson's license. Contracts, financing, deed, title, escrow, closing estates, civil rights ethics, license law, leases, brokerage, total investment decision, appraisal fundamentals and commercial-investment properties. Offered at Firelands only.

BAT 101. Real Estate Law (2). Basic legal framework for subject of real estate. The legal system, estates in land, contracts for the sale of land, deeds, agency relationship, regulations covering brokers and salespersons, evidence of title, mortgages and other liens, civil rights, landlord-tenant, public control of land use, organized forms of multiple ownership, wills and estates. Offered at Firelands only.

BAT 102. Introduction to Business Technology (3). Business technical process including structure of business, functions of marketing, production, finance, personnel, technical processes of control, and responsibilities of business. Offered at Firelands only.

BAT 201. Human Resource Management (3). Basic concepts, principles and functions of management and personnel administration. Acquisition, development, utilization and maintenance of an effective work force; recruitment and selection, testing, interviewing, counseling, developing and compensating employees. Offered at Firelands only.

BAT 203. Production Management (3). Analyzing operations of the firm. Fundamentals of production, design of production systems, operations, coordination and control of production activity, major analytical tools for management. Three hours lecture. Prerequisite or corequisite: STAT 200 or STAT 211. Offered at Firelands only.

BAT 204. Marketing (3). Introduction of organization, management and practice of marketing by business firms. Offered at Firelands only.

BAT 205. Total Quality Leadership (3). Introduction to Managing for Quality, team building, graphical problem solving, how to use teams to improve quality and continuing improvement techniques that optimize just-in-time production methods. Offered at Firelands only.

BAT 207. Business Finance (3). Funds allocation and acquisition process of the firm, financial planning, capital budgeting, capital structure, long- and short-term financing. Offered at Firelands only.

BAT 208. Advertising (3). Design, layout, production and placement of advertising, historical and cultural precedents of modern advertising. Offered at Firelands only.

BAT 209. Management and Supervision (3). Principles of supervision and management techniques. Planning supervisory activities, motivating employees, delegation, leadership behavior, time management, managing performance, performance appraisal and management relations. Three hours lecture. Offered at Firelands only.

BAT 213. Real Estate Finance (3). Home mortgage investment by savings and commercial banks; channeling of money into mortgages, home mortgage lendings, special purpose mortgages and the administration of mortgage accounts. Offered at Firelands only.

BAT 215. Real Estate Appraisal (2). Three basic techniques of appraising market comparison, cost of replacement and income capitalization. The appraising process, understanding value, basic valuation principles, general market analysis, sites and improvement analysis, market data approach, income approach, and reconciliation and the final value estimate. Prerequisites: BAT 100 and BAT 101 or permission of instructor. Offered at Firelands only.

BAT 216. Real Estate Finance (2). Instruments of real estate finance such as mortgages, lien and title theories, leases and land contracts. Other topics including mortgage payment patterns, single family properties, mortgage market, major lenders, government and real estate, and special topics. Prerequisites: BAT 100 and BAT 102 or permission of instructor. Offered at Firelands only.

BAT 217. Real Estate Brokerage (2). Operation of a brokerage business. Includes the opportunity to expand knowledge of broker-client relationship, office management, selection of sales personnel, training salespersons, and a policy and procedure manual for the brokerage office. Prerequisites: BAT 100 and BAT 101 or permission of instructor. Offered at Firelands only.

BAT 218. Special Topics in Real Estate (2). A sample property case study is covered. Other subjects include single family housing design and construction, residential land development, condominiums and cooperatives, farm, rural, commercial and industrial real estate, federal taxation of real estate, and federal, state and local regulatory controls. Prerequisite: BAT 100, BAT 101, BAT 215, BAT 216 or permission of instructor. Offered at Firelands only.

BAT 280. Retail Management (3). Introduction to the principles and practices of retail management using a managerial approach. Topics emphasized include strategic planning, store operation, promotional strategy and computer applications. Offered at Firelands only.

BAT 290. Studies in Business (1-3). Business study projects, seminars and other forums in the fields of marketing, personnel, management, human relations, production, finance, computer science, law or economics. May be repeated up to six credits if topics vary. Prerequisites: sophomore standing and appropriate prior coursework. Offered at Firelands only.

BAT 291. Field Experience (1-3). Paid work activity in an appropriate business environment related to an occupational objective. One credit requires 180 hours of work. May be repeated up to 3 credits. Prerequisite: permission of site supervisor and adviser. Offered at Firelands only.

**BIOL Biology**

BIOL 101. Environment of Life (3). Fall, Spring, Summer. Basic ecology and current environmental problems of air, water and land pollution; human reproduction and population dynamics. Two one-hour lectures and one two-hour laboratory. Not accepted toward biology major or minor. Credit not given for more than one of ENVH 105 and BIOL 101. Applicable to the natural sciences general education requirement. Extra fee.

BIOL 104. Introduction to Biology (4). Fall, Spring, Summer. Basic concepts: the cell, metabolism, genetics, reproduction, development, evolution, ecology. Three one-hour lectures, one two-hour laboratory. Not accepted toward biology major or minor. Applicable to the natural sciences general education requirement. Extra fee.

BIOL 108. Life in the Sea (3). Spring. Shore and ocean environments, variety and adaptations of marine life. Observations of marine organisms in marine laboratory. Three one-hour lectures. High school biology recommended. Not accepted toward biology major or minor. Applicable to the natural sciences general education requirement.

BIOL 204. Concepts in Biology I (5). Fall, Spring, Summer on demand. Introduction to ecological and evolutionary biology, Mendelian and population genetics, and the major groups of plants, animals and microbes. Three one-hour lectures, one three-hour lab and one two-hour recitation. Field trips required. Applicable to the natural sciences general education requirement. Extra fee.

BIOL 205. Concepts in Biology II (5). Fall, Spring, Summer on demand. Introduction to molecular and cellular biology, physiology and organ systems. Three one-hour lectures, one three-hour lab and one one-hour recitation. Applicable to the natural sciences general education requirement. Extra fee.

BIOL 243. Introductory Science Experience at Stone Lab (1-5). Summer. Selected topics in introductory science at Stone Lab (OSU) during summer. May be repeated with different topics. Elective credit only. Does not apply to any major in the sciences.

BIOL 295. Oceanus (3). Spring. Telecourse emphasizing oceanographic and biological aspects of the ocean environment and human impact on the oceans. 30 televised programs, eight two-hour biweekly campus meetings with instructor. High school biology recommended. Not accepted toward biology major or minor.

BIOL 301. Field Biology of the Vertebrates (3). Fall. Evolution, systematics, physiology, ecology and identification of vertebrates. Required field trips emphasize collection techniques and quantitative sampling. Two one-hour lectures and one three-hour laboratory. May occasionally have early A.M. Labs. Prerequisite: BIOL 204 or 205. Credit not given for both BIOL 301 and BIOL 491. Extra fee.

BIOL 310. Biology of Aging (2). Fall. Biological aspects of normal aging at the cellular, tissue and organismal levels. Two one-hour lectures. Prerequisites: BIOL 104 or BIOL 204 and BIOL 332 or BIOL 411, or consent of instructor.

BIOL 313. Microbiology (4). Fall, Spring, Summer on demand. Methods of isolation, culture and identification; physiological, genetic and applied aspects of microorganisms. Two one-hour lectures, two two-hour laboratories. Prerequisites: BIOL 204 and BIOL 205 and one year of chemistry. Extra fee.

BIOL 314. Microbiology for Health Professionals (3). Fall. Microbiological and epidemiological principles as the basis of practice for nursing, dietetics, physical therapy and other health professions. Three one-hour lectures.

BIOL 315. Microbiology Laboratory for Health Professionals (1). Fall. Methods for detection, growth and identification of microorganisms. One three-hour laboratory. No credit for microbiology or biology majors or minors. Prerequisite or corequisite: BIOL 314. Extra fee.

BIOL 325. Applied Ecology of Urban Pests (3). Fall. Biology, ecology and control of urban insects and vertebrate pests; ecosystem manipulation techniques; environmental effects and physiological actions of pesticides. Two one-hour lectures and one two-hour lab. Prerequisite: BIOL 204 and BIOL 205 or permission of instructor. Extra fee.

BIOL 330. Introduction to Behavioral Neuroscience (3). Introduction to modern views of the brain; exploring the relationship between brain, behavior, and the mind. Prerequisites: PSYC 101, BIOL 205 or consent of the instructor. Credit not allowed for both PSYC 330 and BIOL 330.

BIOL 331. Human Anatomy and Physiology I (4). Fall, Spring, Summer. Anatomical and physiological aspects of cells and tissues and the integumentary, skeletal, muscular and nervous systems. Three one-hour lectures and one two-hour laboratory. Prerequisite: BIOL 205. Extra fee.

BIOL 332. Human Anatomy and Physiology II (4). Fall, Spring, Summer. Anatomical and physiological aspects of circulation, respiration, digestion, excretion, endocrinology and reproduction. Three one-hour lectures and one two-hour laboratory. Prerequisite: BIOL 205 or consent of instructor. Extra fee.

BIOL 343. General Botany (4). Spring. Structure, evolution, ecology and physiology of plants and their economic importance. Three hours of lecture and one two-hour lab. Prerequisite: BIOL 204 or consent of instructor. Extra fee.

BIOL 350. General Genetics (4). Fall, Spring. Theoretical and applied aspects of inheritance. Molecular, chromosomal and population levels of heredity in both prokaryotes and eukaryotes. Three one-hour lectures. Prerequisites: BIOL 204 and BIOL 205 or consent of instructor.

BIOL 352. Laboratory in Genetics (1). Fall, Spring. Materials, methods and terminology of genetics through experiments, problems and demonstrations. One three-hour laboratory. Prerequisite or corequisite: BIOL 350. Extra fee.

BIOL 354. Population and Community Ecology (3). Spring. Concepts of modern ecology. Fundamental ecological principles, life history patterns, structure and growth of populations, competition, predation, succession, applied ecology and biodiversity. Three hours lecture. Prerequisite: BIOL 204.

BIOL 370. Introduction to Inland Marine Research (3). Fall. Theories and techniques for designing inland closed ecosystems for scientific research; basic concepts in marine ecology. Two hours of lecture/discussion and three hours of lab arranged. Prerequisites: BIOL 204 and CHEM 125. Extra fee.

BIOL 374. Marine Biology (3). Fall. Biological and oceanographic analysis of marine environments focusing on ecology, population dynamics, and biology of marine organisms. Three hours of lecture. Prerequisites: CHEM 125.

BIOL 400. Special Topics in Biology (1-5). Fall, Spring, Summer. Selected topics or subject areas in life sciences. Prerequisite: consent of instructor; maximum of two enrollments, each with different topic but only six hours may be applied toward major in biology.

BIOL 401. Introduction to Biological Research (1-4). Fall, Spring, Summer. For advanced student who has shown proficiency and marked degree of independence in work. Individual registration. Prerequisite: four semesters of biology and consent of instructor. May be repeated once, but only four hours may be applied toward major in biology. May be taken S/U for major credit.

BIOL 402. Honors Thesis (3). Fall, Spring, Summer. For students in the departmental honors program only. The thesis describes the student's independent research, previously conducted as BIOL 401H. An approved public presentation of the research is required.

BIOL 403. Biological Experience at Stone Lab (1-5). Summer. Selected topics in biology offered at Stone Lab (OSU) during summer. May be repeated with different topics. Prerequisites: sophomore standing, BIOL 204 and BIOL 205 and permission of biology advisor.

BIOL 404. Human Genetics (3). Spring. Alternate years. Essential principles of modern genetics with special emphasis on humans. Methods of human genetic analysis; screening and counseling; genetic aspects of public health; genetics and cancer. Two one-hour lectures and one two-hour laboratory. Prerequisites: BIOL 204 and BIOL 350 or consent of instructor. Extra fee.

BIOL 405. General Parasitology (4). Spring. Ecological, morphological, taxonomic and other biological aspects of parasites. Three one-hour lectures and one two-hour laboratory. Prerequisites: BIOL 204 and BIOL 205 or consent of instructor. Extra fee.

BIOL 406. Medical Entomology (3). Spring. Biology and identification of disease-carrying, toxic and parasitic arthropods. Two one-hour lectures and one two-hour laboratory. Prerequisites: BIOL 204 and BIOL 205 or consent of instructor. Extra fee.

BIOL 407. Cell Biology (4). Fall. Structure and physiology of cells, integrating the dynamics of cellular structures with metabolic functions and control. Two one-hour lectures and one four-hour laboratory. Prerequisites: BIOL 204, BIOL 205 and two years of chemistry or consent of instructor. Extra fee.

BIOL 408. Molecular Biology (3). Fall. Function and structural relationship of genes and gene products, with emphasis on the applications of molecular biology to the diverse fields of biological research. Three one-hour lectures. Prerequisite: BIOL 350 or permission of instructor; CHEM 306 recommended.

BIOL 409. Conservation Biology (3). Fall. Biological diversity and factors responsible for the global extinction crisis. Focus on scientific principles of conservation, emphasis on applications of ecological theory and population genetics to the management of threatened populations, species and ecosystems. Prerequisites: BIOL 204, BIOL 350 and BIOL 354; BIOL 451 highly recommended.

BIOL 411. Animal Physiology (4). Spring. General and comparative animal physiology with emphasis on vertebrate systems. Two one-hour lectures, one three-hour laboratory and one one-hour recitation. Prerequisites: BIOL 204 and BIOL 205 or consent of instructor; organic chemistry and BIOL 407 recommended. Extra fee.

BIOL 412. Field Experience (1-6). On demand. Intensive field study involving quantitative population and community sampling and analysis. Independent projects expected. Requires off-campus travel. Field conditions may be rigorous and/or primitive. May be repeated, but only four hours count toward biology major. Extra fee.

BIOL 413. Vascular Plant Structure (4). Spring. Comparative structure and evolutionary trends of the principal tissues of vascular plants. Three one-hour lectures, one two-hour laboratory. Prerequisite: BIOL 204 or BIOL 343 or consent of instructor. Extra fee.

BIOL 414. Plant Taxonomy and Evolution (4). Fall alternate odd years. Principles of plant classification, evolutionary relationships and processes of plant evolution. Construction and use of keys, identification of local flora, use of classical and molecular techniques in plant evolutionary studies. Three hours of lecture and one two-hour laboratory. Prerequisite: BIOL 204 or consent of instructor. BIOL 343 recommended. Extra fee.

BIOL 417. Plant Physiology (4). Spring. Molecular regulation of plant growth. Genetic engineering of plants. Use of transgenic plants as tools to understand the physiology, biochemistry and environmental regulation of plant metabolism. Three one-hour lectures, one two-hour laboratory and additional laboratory by arrangement. Prerequisites: 10 hours of biology; one year of chemistry. Extra fee.

BIOL 418. Neurophysiology (3). Fall. The function of vertebrate and invertebrate nervous systems in relation to biophysical mechanisms. Changes occurring during development, learning, aging and neurological disorders. Three one-hour lectures. Prerequisites: BIOL 204 and BIOL 205 or consent of instructor. BIOL 407 recommended.

BIOL 419. Neuroethology (3). Spring alternate years. Mechanistic approaches to understanding natural behaviors, from the subcellular level to considerations of life history, ecology and evolution. Prerequisite: BIOL 204 or BIOL 205; PSYC 330 strongly recommended.

BIOL 420. Animal Behavior (4). Fall. Mechanisms and evolution of animal behavior: including its neural, hormonal, and genetic substrates. Three one-hour lectures and one two-hour laboratory. Prerequisites: BIOL 205 and either BIOL 204 or PSYC 101, or consent of instructor. Extra fee.

BIOL 421. Molecular Biotechnology (3). Spring. Overview of techniques of recombinant DNA that form the basic elements of biotechnology and its far-reaching applications in medicine and industry. Three hours of lecture. Prerequisite: Four semesters of biology or consent of instructor. BIOL 313 or BIOL 350 recommended. Extra fee.

BIOL 422. Plant Ecology (4). Fall alternate even years. Physical and biological factors influencing the distribution and abundance of plant populations and communities. Three one-hour lectures and one three-hour laboratory. One weekend field trip required. Prerequisites: BIOL 204 and BIOL 205. Recommended: BIOL 343, BIOL 354 or BIOL 451. Extra fee.

BIOL 424. Algology (4). Fall. alternate odd years. Taxonomy, ecology and morphology of the algae; emphasis on fresh-water algae. One two-hour lecture and two two-hour laboratories. Prerequisites: BIOL 204 and BIOL 205. Extra fee.

BIOL 425. Limnology (3). Fall. Physical, chemical and biological aspects of aquatic habitats. One two-hour lecture, one three-hour lab and one weekend field trip to upper Great Lakes. Prerequisites: BIOL 204 and BIOL 205. Extra fee.

BIOL 426. Pathogenic Microbiology (4). Spring. Morphologic, physiologic, serologic characteristics of pathogenic microorganisms; their epidemiology; and the host-parasite interrelations resulting in infectious disease. Two one-hour lectures and two two-hour laboratories. Prerequisite: BIOL 313; BIOL 439 recommended. Extra fee.

BIOL 427. Invertebrate Zoology (4). Fall. Classification, biology and physiology of invertebrates. Three one-hour lectures and one two-hour laboratory. Prerequisite: one course in biology or consent of instructor. Extra fee.

BIOL 431. Developmental Biology (3). Fall. Overview of animal development (primarily embryogenesis) integrating classical morphological studies and current cellular and molecular findings. Three one-hour lectures. Prerequisites: BIOL 204 and BIOL 205 or consent of instructor.

BIOL 431L. Developmental Biology Laboratory (2). Fall. Early embryogenesis analyzed using current molecular and cell biological techniques (e.g., DNA and/or RNA blots, embryo analysis including DNA and antibody staining). One three-hour laboratory and one one-hour lecture/laboratory. Prerequisite or corequisite: BIOL 431 or consent of instructor. Extra fee.

BIOL 435. Entomology (4). Fall. Biology of insects: structure, physiology, ecology, systematics, evolution and importance to man. Two one-hour lectures and two two-hour laboratories or equivalent in field trips. Prerequisites: BIOL 204 and BIOL 205. Extra fee.

BIOL 438. Endocrinology (4). Spring. Physiological, metabolic actions of selected endocrine secretions with emphasis on mammals. Three one-hour lectures and one three-hour laboratory. Prerequisites: BIOL 411 and organic chemistry or consent of instructor; biochemistry recommended. Extra fee.

BIOL 439. Immunobiology (3). Fall. Study of the immune system. Analysis of the molecules, cells and processes involved in host defense against infection. Three one-hour lectures. Prerequisites: BIOL 204 and BIOL 205. BIOL 350 and biochemistry recommended.

BIOL 440. Molecular Neurobiology (3). Spring. Cellular, molecular and developmental aspects of the nervous system and the molecular basis for the neural involvement in the functions of the mind. Three one-hour lectures. Prerequisite: four semesters of biology or consent of instructor.

BIOL 441. Chemical Ecology (3). Fall. The evolution and ecology of chemical signaling in the recognition of food, mates, hosts and pathogens. Three one-hour lectures. Prerequisites: organic chemistry, BIOL 204 and BIOL 205.

BIOL 442. Plasmid Biology (3). Fall. Mechanisms of plasmid replication, copy number control and compatibility. Methods used to isolate and purify plasmid DNA. Procedures used to transfer plasmids to new hosts. Prerequisite: BIOL 313 or consent of instructor.

BIOL 443. Microbial Physiology (3). Spring. Chemical composition, nutrition, growth, metabolism and regulation in microbial cells. Three hours of lecture. Prerequisites: BIOL 313 and CHEM 308 or consent of instructor.

BIOL 444. Microbial Physiology Laboratory (2). Spring. Growth, nutrition, biochemical, metabolic and regulatory activities of microorganisms. Prerequisite or corequisite: BIOL 443 or consent of instructor. Two two-hour laboratories. Extra fee.

BIOL 445. Microbial Ecology (4). Spring. Microbial processes and mechanisms involved in biogeochemical cycles and bioremediation. Three one-hour lectures and one three-hour laboratory. Prerequisite: BIOL 313 or permission of instructor. Extra fee.

BIOL 446. Scanning Electron Microscopy (4). Spring. Theory of scanning electron microscopy; application to structure/composition of living/inert matter. Sample preparation, backscattered electron detection, energy-dispersive x-ray microanalysis. Two one-hour lectures; two three-hour labs. Prerequisites: PHYS 201 or PHYS 211 and CHEM 125, CHEM 127, CHEM 128 and permission of instructor. Extra fee.

BIOL 447. Microbial Genetics (3). Fall. Molecular biology and genetic phenomena of bacteria and bacteriophage; mutagenesis and recombination. Three one-hour lectures. Prerequisite: four semesters of biology and consent of instructor. BIOL 350 and biochemistry recommended.

BIOL 449. Epidemiology (3). Spring. Distribution and determinants of health and disease in humans. Methods of studying those factors that influence change in the determinants of disease. Three one-hour lectures. Prerequisites: junior standing and completion of two biology courses or consent of instructor. Cross-listed as ENVH 449.

BIOL 451. Evolution (3). Spring. Evidence for evolution. Modern evolutionary theory; modes of selection, speciation, complex adaptations, micro-evolutionary trends. Two one-hour lectures and one two-hour discussion. Prerequisite: BIOL 350.

BIOL 470. Readings in Biological Sciences (1). Fall, Spring, Summer. Independent readings on topics of current or specialized interest in biology. Not more than two hours may be applied to major or minor requirements. Prerequisite: consent of instructor. May be taken S/U for major credit.

BIOL 472. Ichthyology (3). Fall alternate years. Life histories, systematics, physiology, ecology, evolution and biogeography of major groups of freshwater and marine fishes. Two one-hour lectures and one three-hour laboratory. Saturday and/or weekend field trips required. Prerequisites: BIOL 204 and BIOL 205. Extra fee.

BIOL 473. Mammalogy (4). Fall alternate years. Identification, natural history, evolution, zoogeography, ecology, physiology, behavior, with emphasis on Ohio mammals. Two one-hour lectures and one three-hour laboratory; one weekend field trip and additional field work required. Prerequisites: BIOL 204 and BIOL 205 or equivalent. Extra fee.

BIOL 475. Marine Biology Field Trip (1). Spring alternate years. Field trip to marine environment and research station to study different marine habitats. Trips and tours of laboratory facilities, aquariums and research vessels will be made. Course involves intense fieldwork. Prerequisite: BIOL 474 (may be taken concurrently). Extra fee.

BIOL 476. Herpetology (3). Spring. Amphibian and reptile identification, habits, distribution, behavior. Two one-hour lectures and one three-hour laboratory or equivalent field work, all-day field trip. Prerequisites: BIOL 204 and BIOL 205. Extra fee.

BIOL 477. Ornithology (3). Spring. Structure, physiology, behavior, ecology and evolution of birds; identification in field and laboratory. Two one-hour lectures and one three-hour laboratory or equivalent field work, all-day or weekend field trip. Prerequisite: seven hours of biology. Extra fee.

BIOL 487. Special Problems in Marine Science (1-6). Summer. Supervised research on specific problems in all areas of marine science. Prerequisites and credits to be set by problem director and registrar at Gulf Coast Research Laboratory.

BIOL 488. Topics in Marine Science (1-6). Summer. Various marine courses such as oceanography, marine biology, marine ecology, marine mammals, marine invertebrate zoology and others offered when taught by staff at the Gulf Coast Research Laboratory. May be repeated for different titled topics as approved by the departmental Marine Program Coordinator or Director.

BIOL 489. Biology Internship (1-3). Fall, Spring, Summer. For biological sciences majors in cooperative education program. Written report required. May be repeated with permission. Only three hours can apply toward biology major or minor. Prerequisite: consent of the departmental adviser. Graded S/U.

BIOL 490. Seminar (1). Fall, Spring, Summer. Review of literature to acquaint student with research techniques and important work in various fields of biology. May be repeated, but only two hours may be applied toward a biology major. Prerequisite: 10 hours of biology.

BIOL 491. Biology of Vertebrates (4). Fall. Vertebrate adaptation: ecology, biogeography, behavior and physiology of selected vertebrate groups with emphasis on Ohio fauna. Credit not given for both BIOL 301 and 491. Three one-hour lectures and three-hour laboratory. All day Saturday and/or weekend field trips required. Prerequisites: BIOL 204 and BIOL 205. Extra fee.

#### **BUSE Business Education**

BUSE 101. Business Mathematics (3). Fall, Spring. Mathematics of finance, merchandising and business ownership. Consumer application of business mathematics to banking, credit, interest, insurance, home ownership, wages, social security and income taxes. Introduction to the basic accounting cycle.

BUSE 110. Keyboarding (1). Fall, Spring. Touch operation of alphanumeric and symbol keys on microcomputers. Students with one semester of high school typewriting or keyboarding will not receive credit toward graduation. Those students should enroll in BUSE 209. Extra fee.

BUSE 119. Advanced Keyboarding (2). Fall, Spring. Emphasis on keyboarding speed and accuracy and production of office documents. Prerequisite: one semester of high school keyboarding or BUSE 110 and BUSE 204 or equivalent.

BUSE 200. Introduction to Business and Marketing Education (2). Introduction to teaching and learning through business education and marketing education in public and private schools, post-secondary institutions, and private business and industry. C/F hours: 30.

BUSE 201. Introduction to Windows Applications (1). Introduction to Windows operating environment terminology and fundamental applications such as working with files, organizing files with Windows Explorer, customizing the desktop, and using the World Wide Web and various applications in the accessories group. Prerequisite: BUSE 110 or one semester of high school keyboarding or equivalent. Offered at Firelands only.

BUSE 217. Integrated Office Applications (3). Development of word processing, database and spreadsheet skills through integrated activities of a simulation. Review of English mechanics, proofreading skills and document set-up. Fours hours lecture/lab. Prerequisites: BUSE 201, BUSE 204, BUSE 205, BUSE 206 and ENG 112 placement. Offered at Firelands only.

BUSE 240. Business Problems of the Consumer (3). Spring. Relationship of business practices to consumer activities. Developing consumer competencies in insurance, credit, savings, investments, housing and estate planning. Basic economic principles underlying consumer decision making.

BUSE 253. Desktop Publishing Design (3). Development of the concepts and applications of document composition through the integrated activities of a simulation. Graphic design techniques, typographic design, principles of page and document layout. Four hours lecture/lab. Prerequisites: BUSE 201, BUSE 207 and BUSE 307. Offered at Firelands only.

BUSE 261. Introduction to Word Processing Applications (1). Fall, Spring. Introduction to word processing terminology and fundamental applications such as creating, editing, saving, and printing business documents on PC systems. Extra fee.

BUSE 262. Word/Information Processing Applications (3). Fall, Spring. Using formatting functions to create tables, reports, letters, resumes, mail merge documents, online forms, master documents and subdocuments, newsletters, and web pages on word processing systems. Extra fee.

BUSE 264. Introduction to Spreadsheet Applications (1). Fall, Spring. Introduction to spreadsheet terminology and fundamental applications such as planning, building (formulas and functions), formatting, and printing worksheets on PC systems. Emphasis on using spreadsheets in the decision-making process. Prerequisite: BUSE 110 or one semester of high school keyboarding or equivalent. No credit allowed toward BSBA degree. Extra fee.

BUSE 265. Intermediate Spreadsheet Applications (1). Fall, Spring. Intermediate spreadsheet management applications on PC systems. Topics such as graphs, database management, macros, vertical lookup and data tables, and financial functions. Emphasis on using spreadsheets in the decision-making process. Prerequisite: BUSE 206 or CS 100 or MIS 200 or equivalent. Extra fee.

BUSE 266. Advanced Spreadsheet Applications (1). On demand. Advanced spreadsheet techniques such as creating templates and working with multiple worksheets and workbooks, using data analysis tools, developing customized applications with macros and VisualBasic, and using web capabilities. Emphasis on using spreadsheets in decision-making process. Prerequisite: BUSE 306 or its equivalent.

BUSE 268. Introduction to Database Applications (1). Fall, Spring. Introduction to database terminology and fundamental applications such as creating database structures, appending, editing, deleting, and manipulating records to generate business reports on PC systems. Prerequisite: BUSE 110 or one semester of high school keyboarding or equivalent. No credit allowed toward BSBA degree. Extra fee.

BUSE 269. Intermediate Database Applications (1). Fall, Spring. Intermediate database functions such as generating reports, building relationships between databases, creating custom formats and merging database fields with word processing documents on PC systems. Prerequisite: BUSE 205 or CS 100 or MIS 200 or equivalent. Extra fee.

BUSE 270. Advanced Database Applications (1). On demand. Advanced application techniques such as customizing forms and reports, creating macros and modules, integrating with other software applications, and using web capabilities. Prerequisite: BUSE 305 or its equivalent.

BUSE 272. Introduction to Presentation Software Applications (1). On demand. Designing, editing, enhancing, and customizing presentations and integrating presentations with other software programs and the World Wide Web.

BUSE 274. Introduction to Desktop Publishing Applications (1). Fall, Spring. Introduction to desktop publishing terminology and fundamental applications such

as planning, creating, formatting, and printing one-page publications on PC systems. Prerequisite: BUSE 204 or equivalent. Extra fee.

BUSE 275. Advanced Desktop Publishing Applications (1). Fall, Spring. Advanced concepts of desktop publishing PageMaker on the IBM-compatible computer. Emphasis is on creating brochures, booklets and using advanced graphics. Prerequisite: BUSE 207 or equivalent. Extra fee.

BUSE 276. Desktop Publishing Applications (1). Fall, Spring. Introduction to desktop publishing with emphasis on creating brochures, booklets, pamphlets, advertising flyers and other office publications.

BUSE 278. Introduction to Web Software Applications (1). On demand. Introductory application techniques such as developing a web site and creating, formatting, testing, and revising a web page using Web software.

BUSE 279. Advanced Web Software Applications (1). On demand. Advanced application techniques such as creating and using tables, frames and shared borders, and interactive forms and modifying HTML code in Web software. Prerequisite: BUSE 227 or equivalent.

BUSE 311. Dictation and Transcription (3). On demand. Dictation at speeds of 80 wpm; emphasis on rapid, accurate transcription. Open to students with a background in any shorthand/notetaking system. Three class periods and one hour lab. Prerequisite: BUSE 213 or equivalent. Extra fee.

BUSE 314. Internship in Business Education (1-3). Fall, Spring, Summer. Supervised experience in business offices. 100 clock hours of work required for each hour of college credit. Interviewing and written paper also required. May be repeated up to three hours. Graded S/U.

BUSE 315. Internship in Marketing Education (1-3). Fall, Spring, Summer. Supervised experience in marketing-related businesses. 100 clock hours of work required for each hour of college credit. Interviewing and written paper also required. May be repeated up to three hours. Graded S/U.

BUSE 316. Internship in Business Education and Marketing Education (1-4). Fall, Spring, Summer. Supervised business office and marketing experience. 100 clock hours of work required for each hour of college credit. Written paper also required. May be repeated up to four hours. Graded S/U.

BUSE 321. Computer Data Processing (3). Fall. Computer concepts utilizing BASIC programming language on personal computers with hands-on experience.

BUSE 333. Business Records Management (1). Principles and practices of reliable and systematic control of information and business records. No credit for both BUSE 333 and BUSE 335.

BUSE 335. Office and Records Management Systems (3). Fall, Spring. Procedures for control of information and business records. Analysis of office systems, work activities and automation for improvement of office operations.

BUSE 352. Basic Business in Secondary Schools (2). Fall. Principles, objectives and methods of teaching basic business subjects; resource unit development. C/F hrs: 32.

BUSE 354. Accounting and Data Processing in Secondary Schools (2). Fall. Principles, objectives and methods of teaching accounting and data processing; review of the accounting cycle. C/F hrs: 26.

BUSE 356. Shorthand and Secretarial Practice in Secondary Schools (1). On demand. Principles, objectives and methods of teaching shorthand, transcription and secretarial practice. C/F hrs: 30.

BUSE 358. Keyboarding and Clerical Practice in Secondary Schools (1). Fall. Principles, objectives and methods of teaching keyboarding and clerical practice. C/F hrs: 30.

BUSE 364. Marketing Education in Secondary Schools (3). Fall. Principles, objectives and methods of teaching vocational and relative subject matter in marketing education.

BUSE 401. Office Administration (3). On demand. Intensive study of procedures, skills, knowledges and technologies basic to office administration positions; refinement of office management operations, office simulations; and advanced word/information processing applications using microcomputers. Prerequisites: BUSE 209, BUSE 304, BUSE 325, BUSE 326 or permission of instructor. Extra fee.

BUSE 451. Career Development (2). Factors associated with career development. Self-exploration and management; career opportunities, assessment and resources; work ethics and expectations; and job search. Prerequisite: consent of instructor.

BUSE 455. Administrative Management (3). Fall, Spring. Principles and practices of managing office personnel and operations. Selecting, developing, motivating and appraising office employees. Office layout and design, work measurement and work standards.

BUSE 461. Development of Instructional Materials in Marketing Education (2). Fall. Methods of developing teaching materials in marketing education.

BUSE 462. Coordination in Cooperative Marketing Education (2). Spring. Coordination in high school, post-high school and adult education programs for marketing education. C/F hrs: 14.

BUSE 463. Teaching and Learning Strategies for Adults (2). Spring. Identification of adult needs; curriculum, instruction and assessment for adults; instructional programs for adults. Prerequisites: BUSE 200 and junior standing. C/F hours: 8.

BUSE 464. Teaching and Learning in Marketing Education (4). Fall. The teaching and learning process as it relates to marketing education including curriculum, instruction, integration of academic and marketing education, assessment, student organizations and career development for learners ages eight and beyond. Prerequisites: BUSE 200, EDFI 302, MKT 300. Minimum overall GPA of 2.4 required to enroll. No credit for both BUSE 464 and BUSE 364 or BUSE 461. Take concurrently with BUSE 465, BUSE 469, BUSE 451 (Career Development), BUSE 477 (Business and Marketing Education Practicum), EDFI 402. C/F hours: 10.

BUSE 465. Development and Trends in Workforce Education (2). Fall. Workforce education as sponsored by federal, state and local legislation; new and emerging trends and initiatives such as national and state workforce education strategic plans, career academies, tech prep and career pathways. Take concurrently with BUSE 464 or BUSE 467, BUSE 469, BUSE 451 (Career Development), BUSE 477 (Business and Marketing Education Practicum), EDFI 402.

BUSE 467. Teaching and Learning in Business Education (4). Fall. The teaching and learning process as it relates to business education including curriculum, instruction, integration of academic and business education, assessment, student organizations and career development for learners ages eight and beyond.

Prerequisite: ACCT 200 or ACCT 221, BUSE 200, BUSE 110, BUSE 304, EDFI 302, MIS 200 or CS 100, and MKT 300. Minimum overall GPA of 2.4 required to enroll. No credit for both BUSE 467 and BUSE 352, BUSE 354, BUSE 356, BUSE 358 or BUSE 468. Take concurrently with BUSE 465, BUSE 469, BUSE 451 (Career Development), BUSE 477 (Business and Marketing Ed. Practicum), EDFI 402. C/F hours: 10.

BUSE 468. Vocational Business and Office Education (4). Spring. Program construction, organization, improvement, implementation, evaluation and development of program guides for both intensive and cooperative vocational business education. C/F hrs: 28.

BUSE 469. Work-based Teaching and Learning (2). Fall. Managing and facilitating the teaching and learning process using work-based instructional and assessment strategies and connecting them to school-based instruction. Prerequisites: BUSE 200 and EDFI 302. No credit for both BUSE 469 and BUSE 462 or BUSE 468. Take concurrently with BUSE 464 or BUSE 467, BUSE 465, BUSE 451 (Career Development), BUSE 477 (Business and Marketing Education Practicum), EDFI 402. C/F hours: 8.

BUSE 470. Studies in Business and Marketing Education (1-4). Fall, Spring. Offered on individual, seminar or lecture basis. Treatment of selected areas in depth depending on student needs and nature of material. May be repeated up to four hours. Prerequisite: consent of instructor. Graded S/U.

BUSE 477. Business and Marketing Education Practicum (1-4). Fall. Field experience in local schools to familiarize students with Business and/or Marketing Education teaching responsibilities, including planning, instruction, assessment, and classroom management, as well as school administration and policies, teacher duties, and student organizations. Take concurrently with BUSE 464 or BUSE 467, BUSE 465, BUSE 469, BUSE 451 (Career Development), EDFI 402.

BUSE 486. Workshop in Business and Marketing Education (1-3). Summer. Areas of current interest to teachers in business, marketing and vocational education. Possible areas include: applied academics, employability, entrepreneurship, desktop publishing, cooperative education and postsecondary education.

BUSE 497. Student Teaching (1-16). Fall, Spring. Classroom teaching under supervision on full-day basis. Conferences and seminars supplement program. Required of students in secondary school or special certification program. Eligibility requirements must be met. Prerequisite: Grade of C or better in BUSE 464 or BUSE 467. C/F hrs.: 300. May be repeated. Graded S/U. Extra fee.

#### **CAST Canadian Studies**

CAST 201. Introduction to Canadian Studies (3). Fall, Spring, Summer on demand. Multidisciplinary review of Canadian development. Comparisons with the United States. Canada's history, geography, government and political system, population and social policy, economy and foreign trade, literature, art, and popular culture. Applicable to the social sciences and international perspective general education requirements.

CAST 305. Canadian Film (3). Fall and/or Spring. Canadian feature films from 1939 to the present seeks to determine a Canadian national identity, taking into consideration English and French Canadian social, political and cultural issues. The course explores Canadian film styles in relation to American and European models. Extra fee.

CAST 400. Seminar in Canadian Studies (1-4). On demand. Various topics relating to the study of Canada. May be repeated up to 8 hours if topics differ. Prerequisite: consent of instructor.

### **CAT Communication Arts Technology**

CAT 191. Principles of Communication Arts Technology (3). History and application of communication arts technology; emphasis on interdisciplinary nature of CAT. Defining CATs, networks and telephony, design issues in multimedia development, practical application in business, government, industry. General emphasis on written work and thinking skills. Prerequisite/corequisite: ENG 112 or permission of instructor. Offered at Firelands only.

CAT 210. Computer Presentation Tools and Methods (1). Planning and implementing effective computer-based presentations for the business environment. Keyboarding skills and a basic knowledge of Windows environment required. Offered at Firelands only.

CAT 220. Multimedia Literacy (1). Multimedia basics, including concept design, planning, content generation, graphics, audio, delivery formats, and systems development. Keyboarding skills and basic knowledge of Windows environment required. Offered at Firelands only.

CAT 251. Voice and Video Systems (3). Technical overview of voice and video systems. Technical introduction to telephones, telephony and telecommunication systems, local and long distance technologies, computer telephony integration, video standards and delivery systems, applications in business and industry. Prerequisite: CAT 191. Offered at Firelands only.

CAT 290. Studies in Communication Arts Technology (1-3). Workshops and seminars dealing with current topics and software technologies not covered in existing courses. May be repeated to 6 credit hours if topics differ. Offered at Firelands only. Approved for web delivery.

CAT 291. Communication Arts Technology Integrative Seminar (3). Capstone experience for associate degree in CAT. Directed field research; emphasis on occupational exploration and relations between field experience and coursework. Prerequisite: CAT major. Offered at Firelands only.

### **CDIS Communication Disorders**

CDIS 123. Introduction to Communication Disorders (3). Fall, Spring, Summer. Normal speech and language development; description and etiology of various communication disorders including phonology, voice, stuttering, language and hearing. Applicable to the social sciences general education requirement.

CDIS 224. Phonetics (3). Fall, Spring. Sounds of spoken English, their production and recognition. Applications to techniques in speech pathology and habilitations of the hearing handicapped. Prerequisite: CDIS pre-major or consent of department chair.

CDIS 225. Speech and Language Acquisition and Development (3). Fall, Spring. Speech and language acquisition theories, developmental processes, and characteristics of phonology, morphology, syntax, semantics, and pragmatics in individuals throughout the lifespan. Prerequisite: CDIS pre-major or consent of department chair.

CDIS 301. Anatomy and Physiology of the Speech Mechanism (4). Fall, Spring. Anatomical and physiological principles of the speech mechanism, including central and peripheral nervous systems. Three one-hour lectures and one two-hour laboratory. Prerequisites: BIOL 205 or BIOL 331 or BIOL 332; CDIS major or permission of department chair.

CDIS 302. Acoustics for Speech and Hearing (4). Fall. The nature of sound waves, simple harmonic motion, complex waves, sound transmission, and the acoustics of

speech. Three one-hour lectures and one two-hour laboratory. Prerequisites: PHYS 101 or PHYS 201; CDIS major or permission of department chair.

CDIS 311. Phonological Assessment and Intervention (3). Fall, Spring. Introduction to developmental disorders of speech sound production. Linguistic and motoric aspects of normal and disordered phonological development, and clinical management thereof. Prerequisite: CDIS 225; Pre- or Corequisite: CDIS 301; CDIS major or permission of department chair.

CDIS 351. Language Assessment and Intervention (4). Fall, Spring. Overview of language disorders; principles and techniques of language evaluation and treatment. Three one-hour lectures and one two-hour laboratory. Prerequisites: CDIS 225; CDIS major or permission of department chair.

CDIS 361. Diagnostic Audiology (3). Spring. Anatomy and physiology of the auditory mechanism; audiometric pure-tone and speech testing; electrophysiological measures; otologic pathologies and associated hearing problems. Prerequisites: CDIS 302; CDIS major or permission of department chair.

CDIS 401. Clinical Methods in Communication Disorders (4). Fall, Spring. Introduction to clinical setting; student will be involved in planning, observing and assisting in therapy. Three lectures, two observation periods per week. Prerequisites: CDIS 311, CDIS 351; CDIS major or consent of department chair.

CDIS 421. Practicum in Communication Disorders (1-3). Supervised clinical experiences with children and/or adults. Prerequisites: CDIS 401, CDIS major, overall GPA of 3.0 or above, GPA in major of 3.2, nothing less than C in major courses, minimum observation hours required by ASHA, and consent of appropriate department faculty. Student liability insurance required. Extra fee.

CDIS 461. Fundamentals of Audiologic Rehabilitation (3). Fall. Methods of assessment and treatment of hearing disorders in children and adults. Individual and group amplification systems; speech and language characteristics of the hearing-impaired; speechreading and auditory training techniques. Prerequisites: CDIS 302; CDIS major or permission of department chair.

CDIS 471. Introduction to Communication Disorders for the Classroom Teacher (3). Fall, Spring, Summer. Identification, etiologies and characteristics of communication disorders. Suggestions for classroom management of communication disorders. Not open to student with credit for CDIS 223.

CDIS 476. Introduction to Research in Speech and Hearing (2). On Demand. Basic research methods for planning research, as well as data collection, analysis, and interpretation of research within Communication Disorders. Preparation for reading research as well as participating in research. Mentored research experience included. One hour lecture; one hour research. Prerequisites: Pre-CDIS or CDIS Major or consent of instructor.

CDIS 480. General Seminar (1-4). Fall, Spring. Variable topic seminar. Specific content areas offered depends on demand and interest of faculty. May be taken four times (up to 16 credit hours). Prerequisites: junior standing (60 semester hours); permission of instructor and department chair.

CDIS 490. Independent Study in Communication Disorders (1-3). Fall, Spring, Summer. For students who wish to do intensive study in communication disorders independently or in conjunction with courses regularly offered. May be repeated. Prerequisite: consent of instructor and department chair.

## **CHEM Chemistry**

CHEM 100. Introduction to Chemistry (3). Fall, Spring, Summer. Examination of basic chemical concepts and role of chemistry in modern society. For students not majoring in sciences. Not counted toward chemistry major or minor. Applicable to the natural sciences general education requirement.

CHEM 109. Elementary Chemistry (3). Fall, Spring, Summer. General chemistry and introduction to organic chemistry. Not accepted toward chemistry major or minor. Three lectures. Corequisite: CHEM 110. Prerequisites: two years of high school science and high school algebra or its equivalent. Applicable to the natural sciences general education requirement.

CHEM 110. Elementary Chemistry Laboratory (1). Fall, Spring, Summer. Exploration of fundamental chemical principles and their application to the solution of environmental, health, and economic problems. Not accepted toward chemistry major or minor. Corequisite: CHEM 109. Applicable to the natural sciences general education requirement. Extra fee.

CHEM 117. Elementary Organic Chemistry and Biochemistry (4). Fall, Spring. Not accepted toward chemistry major or minor. Survey of principles of organic and biochemistry, with medical applications. Prerequisites: CHEM 109 or CHEM 125, proficiency examination or consent of instructor. Applicable to the natural sciences general education requirement.

CHEM 125. General Chemistry (5). Fall, Spring, Summer. Chemistry sequence for students majoring in sciences, the liberal arts or in premedical programs. Three lectures, one recitation, one three-hour laboratory. Prerequisites: high school chemistry, algebra and geometry, or CHEM 109 and CHEM 110. Applicable to the natural sciences general education requirement. Extra fee.

CHEM 127. General Chemistry (4). Fall, Spring, Summer. Three lectures, one recitation. CHEM 125 continued. Prerequisite: C or better in CHEM 125 or CHEM 135. Corequisite: CHEM 128. Applicable to the natural sciences general education requirement.

CHEM 128. General Chemistry Laboratory (1). Fall, Spring, Summer. One three-hour laboratory. Includes some qualitative analysis. Prerequisite: C or better in CHEM 125 or CHEM 135. Corequisite: CHEM 127. Applicable to the natural sciences general education requirement. Extra fee.

CHEM 135. General Chemistry (5). Fall. General chemistry sequence for well-prepared students. Three lectures, one recitation, one three-hour laboratory. Prerequisites: high school chemistry or CHEM 109-CHEM 110. Corequisite: MATH 130 or MATH 131. Applicable to the natural sciences general education requirement. Extra fee.

CHEM 137. General Chemistry (4). Spring. CHEM 135 continued. Four lectures. Prerequisites: C or better in CHEM 135, or B or better in CHEM 125 and consent of instructor. Corequisite: CHEM 138 or 128. Applicable to the natural sciences general education requirement.

CHEM 138. General Chemistry Laboratory (1). Spring. One three-hour laboratory. Emphasis on quantitative procedures. Prerequisite: C or better in CHEM 125 or CHEM 135. Corequisite: CHEM 137. Applicable to the natural sciences general education requirement. Extra fee.

CHEM 199. Introduction to Elementary Organic Chemistry (1). Fall, Spring. Not accepted toward chemistry major or minor. Provides a link between the CHEM 125-127-128 sequence and CHEM 117-118; concurrent with the last one-third of CHEM

109. Three lectures, one three-hour laboratory. Prerequisites or corequisites: CHEM 125 and consent of department.

CHEM 201. Quantitative Chemical Analysis (3). Fall. Theory and practice of quantitative analysis: volumetric, spectrophotometric and electrochemical methods. Two lectures, one three-hour laboratory. Prerequisite: C or better in CHEM 127 and CHEM 128. Extra fee.

CHEM 306. Organic Chemistry (4). Fall, Spring, Summer. A survey course of organic chemistry including an introduction to biomolecules. For students who do not require full-year course. Not accepted toward chemistry major. Three lectures, one three-hour laboratory. Prerequisites: CHEM 127 and CHEM 128 or CHEM 137 and CHEM 138. Extra fee.

CHEM 308. Basic Biochemistry (3). Spring, Summer. Three lectures. A survey course of biochemistry including biomacromolecules and metabolism. For students whose program does not require full-year course. Prerequisite: CHEM 344 and CHEM 345 or CHEM 346 or C or better in CHEM 306; BIOL 104 and CHEM 201 recommended.

CHEM 309. Elementary Biochemistry Laboratory (1). Spring, Summer. Basic biochemical techniques. One three-hour laboratory. Prerequisite or corequisite: CHEM 308 or CHEM 445. Extra fee.

CHEM 313. Special Topics in Chemistry (1-3). Fall, Spring, Summer. Specific topics of current interest in chemistry. Not applicable toward minimum 32-hour major or 20-hour minor. May be repeated with different topics.

CHEM 341. Organic Chemistry (5). Fall, Summer. Structure and reactivity of organic substances. Four lectures, one three-hour laboratory. Prerequisites: CHEM 127 and CHEM 128 or CHEM 137 and CHEM 138. Extra fee.

CHEM 344. Organic Chemistry (3). Spring, Summer. CHEM 341 continued. Three lectures. Prerequisite: C or better in CHEM 341. Corequisites: CHEM 345 or CHEM 346.

CHEM 345. Organic Chemistry Laboratory (2). Spring, Summer. Two three-hour laboratories. For chemistry majors and others requiring a strong background in experimental chemistry. Prerequisite: C or better in CHEM 341. Corequisite: CHEM 344. Extra fee.

CHEM 346. Organic Chemistry Laboratory (1). Spring, Summer. One three-hour laboratory. Laboratory synthesis and properties of organic molecules. Prerequisite: C or better in CHEM 341. Corequisite: CHEM 344. Extra fee.

CHEM 352. Physical Chemistry (3). Fall. Three lectures. A survey course of Physical Chemistry. For students whose program does not require full-year course. Prerequisites: CHEM 127-CHEM 128 and CHEM 201 or CHEM 137-CHEM 138, MATH 130. Prerequisite or corequisite: PHYS 202 or PHYS 212.

CHEM 402. Numerical Methods in Chemistry (1). Spring. Use of computers and numerical methods in chemistry; survey of computer graphics and microcomputer-based instrumentation in chemical research. Prerequisite or corequisite: CHEM 405.

CHEM 405. Physical Chemistry (4). Fall. Four lectures. Thermodynamics and quantum chemistry. Prerequisites: CHEM 137-CHEM 138 or CHEM 127-CHEM 128 and CHEM 201; MATH 232 and either PHYS 212 or PHYS 202. Corequisite: CHEM 407.

CHEM 406. Physical Chemistry (4). Spring. CHEM 405 continued. Electrochemistry, kinetics, spectroscopy and molecular structure. Prerequisite: CHEM 405.

CHEM 407. Integrated Analytical and Physical Laboratory (2). Fall. Two three-hour laboratories. Principles of measurement; spectral, chromatographic and electroanalytical techniques; thermodynamic and kinetic measurements; computerized data acquisition. Prerequisite or corequisite: CHEM 405 or CHEM 352. Extra fee.

CHEM 408. Integrated Analytical and Physical Laboratory (2). Spring. CHEM 407 continued. Prerequisite: CHEM 407; prerequisite or corequisite: CHEM 406. Extra fee.

CHEM 413. Undergraduate Research (1-3). Fall, Spring, Summer. Independent study and research. Three to nine hours of laboratory, one half-hour conference each week. Not applicable toward minimum requirements of major or minor. Prerequisites: consent of instructor, 20 hours of CHEM or consent of department, 2.5 minimum overall GPA. May be repeated, but no more than six hours credit may be applied toward degree.

CHEM 416. Bioinorganic Chemistry (3). Spring. Three lectures. Role of inorganic chemistry in biological processes. Biological role of metal ions, structure and function of metalloproteins, electron-transfer reactions and medicinal applications of metal complexes. Prerequisites: CHEM 406 and CHEM 463.

CHEM 442. Organic Reaction Mechanisms (3). Spring. Fundamentals of organic reaction mechanisms and methods of their elucidation. Prerequisite: CHEM 344 and CHEM 345 or CHEM 346. Prerequisite or corequisite: CHEM 405.

CHEM 445. General Biochemistry (3). Fall. Three lectures. Structure, function, chemical, and physical properties of biomolecules with an emphasis on biomacromolecules. Prerequisite: CHEM 344 and CHEM 345 or CHEM 346. BIOL 205 is strongly recommended.

CHEM 446. Biochemistry Laboratory (1). Fall. Experimental techniques in biochemistry. Three-hour laboratory. Prerequisite or corequisite: CHEM 445. Extra fee.

CHEM 447. General Biochemistry (3). Spring. Three lectures. Energetics and regulation of metabolic processes. Prerequisite: CHEM 445.

CHEM 449. Advanced Biochemistry Laboratory (2). Spring. Research techniques in biochemistry. Two three-hour laboratories. Prerequisite: CHEM 446 or permission of instructor. Extra fee.

CHEM 454. Instrumental Methods of Analysis (3). Spring. Theory of instrumental methods of analysis including electroanalytical, spectroscopic and chromatographic methods. Prerequisite: CHEM 407 or consent of instructor.

CHEM 463. Advanced Inorganic Chemistry (3). Fall. Chemical bonding, stereochemistry, acid-base chemistry, periodicity, nonmetal and transition metal chemistry, organometallic and bioinorganic chemistry. Prerequisite: CHEM 405.

CHEM 466. Spectroscopic Methods in Organic Chemistry (3). Fall. Organic structure determination by spectroscopic techniques, with emphasis on infrared, ultraviolet and nuclear magnetic resonance spectroscopy, and mass spectrometry. Also includes a brief introduction to related spectroscopic methods. Prerequisite: CHEM 344 and CHEM 345 or CHEM 346. Prerequisite or corequisite: CHEM 405.

CHEM 483. Advanced Topics in Chemistry (1-3). Fall, Spring, Summer. Rigorous study of specific topics of current interest. Not applicable toward minimum 32-

hour major or 20-hour minor. May be repeated with different topics.  
Prerequisite: CHEM 344 and CHEM 345 or CHEM 346 or consent of instructor.

### **CHIN Chinese**

CHIN 101. Beginning Chinese I (4). Introduction to Mandarin Chinese, the official standard language of Mainland China and Taiwan. Development of the four skills: listening, speaking, reading and writing. Four class periods and laboratory practice each week. Applicable to the humanities and arts and international perspective general education requirements.

CHIN 102. Beginning Chinese II (4). CHIN 101 continued. Four class periods and laboratory practice each week. Prerequisite: CHIN 101 or equivalent. Applicable to the humanities and arts and international perspective general education requirements.

CHIN 201. Intermediate Chinese I (4). CHIN 102 continued. Grammar and character writing review; continued development of the four skills. Four class periods and laboratory practice weekly. Prerequisite: CHIN 102 or equivalent. Applicable to the humanities and arts and international perspective general education requirements.

CHIN 202. Intermediate Chinese II (4). CHIN 201 continued. Four class periods and laboratory practice weekly. Prerequisite: CHIN 201 or equivalent. Applicable to the humanities and arts and international perspective general education requirements.

CHIN 216. Contemporary Chinese Culture (3). Contemporary life in Chinese societies and crosscultural study of Chinese values. Study of culture as displayed in societal institutions and the arts. Presentations, readings, discussions, and writing in English. Applicable to the humanities and arts and international perspective general education requirements. Approved for web delivery.

CHIN 300. Selected Topics in Chinese Language and Culture (2-6). Topic chosen from language, culture or literature to meet curriculum needs and student requests both on campus and in a study abroad setting. May be repeated with different topics up to 12 hours. Prerequisite: consent of instructor.

CHIN 480. Selected Topics in Chinese (1-3). Topics chosen from Chinese literature, culture or thought to meet curriculum needs and student requests. May be repeated to six hours with different topics.

CHIN 491. Studies in Chinese (1-3). Independent reading for the advanced student. Prerequisites: arrangement with the instructor and consent of department chair prior to registration.

### **CLCV Classical Civilization**

CLCV 241. Great Greek Minds (3). Fall, Summer. Masterpieces of Greek literature in English translation: Homer, Sappho, Pindar, Aeschylus, Sophocles, Euripides, Aristophanes, Herodotus, Thucydides, Plato, Aristotle. Introduction to history, art, customs, and beliefs. No Greek required. No credit for both CLCV 241 and CLCV 485. No credit for both LAT 141 and CLCV 241. Applicable to the humanities and arts general education requirement.

CLCV 242. Great Roman Minds (3). Spring. Masterpieces of Latin literature in English translation: Lucretius, Cicero, Catullus, Virgil, Horace, Livy, Ovid, Petronius, Tacitus, Juvenal, Martial. An introduction to history, art, customs and beliefs. No Latin required. No credit for both CLCV 242 and CLCV 486. No credit for both LAT 142 and CLCV 242. Applicable to the humanities and arts general education requirement.

CLCV 245. Word Power from Greek and Latin Roots (3). Spring. Terms and concepts derived from Greek and Latin occurring in English; designed for premedical, premedical, prelaw, language, sciences majors. No credit for both LAT 145 and CLCV 245.

CLCV 380. Classical Mythology (3). Spring. Study in English of Greek and Roman myths; historical meanings and influence on life, literature and art. No Latin required. No credit for both LAT 480 and CLCV 380. Applicable to the humanities and arts general education requirement.

CLCV 381. Roman Life (3). Fall. Study in English of Roman daily life and popular culture as described in literature and attested in history, art and archeology. No Latin required. No credit for both LAT 481 and CLCV 381.

CLCV 388. Topics in Classical Civilization (1-3). Fall, Spring, Summer. Exploration in English of Greek or Roman literature or culture. May be repeated with different topics up to 12 credits.

CLCV 485. Greek Civilization (3). Fall. Study of the literature, art, history, customs and beliefs of the ancient Greeks in English translation. For classical civilization majors or minors and students wanting to fulfill humanities requirement. No credit for both CLCV 241 and CLCV 485. No credit for both LAT 485 and CLCV 485.

CLCV 486. Roman Civilization (3). Spring. Study of literature, art, history, customs and beliefs of the ancient Romans in English translation. For classical civilization majors or minors and students wanting to fulfill humanities requirement. No credit for both CLCV 242 and CLCV 486. No credit for both LAT 486 and CLCV 486.

CLCV 499. Apprentice Teaching (3). On demand. Learn about teaching CLCV, GRK, or LAT course under the guidance of an experienced teacher. Student apprentice duties vary. Course cannot be used in partial fulfillment of CLCV or LAT major or minor. May be repeated to six credit hours. Prerequisite: consent of instructor.

#### **CONS Construction Management & Technology**

CONS 101. Topics in Construction (2). Fall. Introduction to career objectives in a seminar setting with construction professionals. Introduces team building, professional practices, current issues in construction through readings and discussions of construction trade journals. Two hours lecture. Extra fee.

CONS 235. Introduction to Construction (3). Fall, Spring. Basic concepts of construction management and technology, including office organization, building construction techniques, surveying, building materials, plan reading and estimating. One and one-half hours lecture, three hours laboratory. Extra fee.

CONS 239. Construction Document Reading (3). Fall and Spring. An introductory course to construction document reading. Provides a basic working knowledge of construction drawings, design and construction mathematics, specifications, material submittal process, building codes, and material quantity take-off. Prerequisite: CONS 101 or consent of instructor.

CONS 306. Residential Construction (3). Spring. Residential and light commercial construction, including principles of project organization, market and site analyses, cost estimating, scheduling, financial management, construction techniques, contracting and marketing. One and one-half hour lecture, three hours laboratory. Prerequisites: CONS 235 and DESN 105. Extra fee.

CONS 318. Construction Surveying (3). Fall. Detailed study of surveying, including field work, with equipment such as transit, level and tape. Emphasis on closure. One and one-half hours of lecture and three hours of laboratory. Prerequisites: CONS 235 and MATH 129 or equivalent. Extra fee.

CONS 320. Computer Application in Construction (3). Spring. Computer applications of construction programs in the areas of materials, methods and management. Two hours lecture, two hours laboratory. Prerequisites: admission to construction program, TECH 101 or equivalent, junior standing. Extra fee.

CONS 335. Construction Materials and Testing (3). Fall. Materials and testing as used in commercial construction. Emphasis on foundation, sitework, soils and concrete. One and one-half hours of lecture and three hours laboratory. Prerequisites: CONS 235 and PHYS 201. Extra fee.

CONS 336. Structural Design (3). Spring. Standard methods utilizing shear and bending stresses to size structural members. Emphasis on floor framing systems, columns and connections in steel and wood per design codes. Two hours of lecture and two hours laboratory. Prerequisite: DESN 243. Extra fee.

CONS 337. Heating, Ventilating and Air Conditioning Systems (3). Spring. Mechanical systems for heating, ventilating, air conditioning cooling of buildings and in production processes. Experience with conventional and solar mechanical systems; determining losses, make-up, system sizing, control. Methods, materials and problems encountered in installing mechanical systems are stressed. One and one-half hours of lecture and three hours laboratory. Prerequisite: CONS 235 or permission of instructor. Extra fee.

CONS 406. Temporary and Concrete Structures (3). Fall. Design and construction of concrete structures. Placement of temporary formwork including sheathing, bracing and shores. Concrete design of slabs, beams and columns. Three hours of lecture. Prerequisite: CONS 336.

CONS 411. Construction Safety and Health Management (3). Fall and Spring. This course will cover a broad spectrum of Occupational Safety and Health. It covers progressive management systems and effect on profit. The course will include the history of safety and health, the industry regulations, program development and implementation, hazard analysis, work-related injuries, and safety topics through hands-on training and government documents. The student may receive 30-hour OSHA card. Prerequisites: Junior Standing; CM&T Major only or consent of instructor.

CONS 412. Water Resources and Treatment (3). Introduction to design fundamentals associated with providing a public water supply and wastewater collection systems. Topics include fluid mechanics, water and wastewater quality, treatment requirements, design methods of water distribution, environmental considerations. One and one-half hours of lecture and three hours laboratory. Prerequisites: CHEM 125, PHYS 201 or consent of instructor.

CONS 435. Construction Methods and Practices (3). Spring. Advanced course in commercial construction emphasizing superintendent's role in planning, inspecting, expediting and supervising construction operations. One and one-half hours of lecture and three hours laboratory. Extra fee.

CONS 437. Construction Equipment (3). Fall. Equipment factors related to construction operations. Ownership and operating costs and productivity of major construction equipment; frequent down-time items. One and one-half hours of lecture and three hours laboratory. Prerequisite: CONS 235. Extra fee.

CONS 439. Estimating and Cost Control (3). Fall, Spring. Take-off, costing and pricing for typical construction project. Preparation of final bid document including all material, labor, equipment, overhead costs, and profit margin. Two hours of lecture and two hours of laboratory. Prerequisites: CONS 235 and CONS 320. Extra fee.

CONS 440. Construction Contracting (3). Fall, Spring. Type of construction procurement, contracts and specifications important to project management. Subcontracting, insurance, bonds, mechanics liens and labor relations. Concepts applied to cases. Two hours lecture, two hours laboratory. Prerequisite: senior standing or permission of instructor. Extra fee.

CONS 442. Construction Scheduling (3). Fall. Management utilizing critical path method, activity on arrow, Gantt charts and PERT techniques. Planning, scheduling, control, resource allocation and least-cost expediting using computers. Two hours lecture, two hours laboratory. Prerequisites: senior standing or permission of instructor. Extra fee.

CONS 447. Trenchless Technology Construction (3). Spring. Introduction to the different trenchless techniques including identification and quantification of the different components of each technique along with their advantages and disadvantages. One and one-half hours lecture, three hours laboratory. Prerequisite: Junior Standing.

CONS 470. Construction Capstone Project (3). Fall, Spring. Formulate a construction project manual using several software packages. The comprehensive manual includes schedule, quantity survey, estimate, project management considerations and a panel defense. Prerequisites: CONS 439, CONS 442. Extra fee.

CONS 490. Problems in Construction Technology (1-3). For advanced students wanting to conduct intensive study of selected problems in construction technology. May be repeated. Prerequisite: consent of instructor. Graded S/U.

#### **COOP Cooperative Education**

COOP 050. Cooperative Internship or Academic Internship (). Fall, Spring, Summer. Work and study in business and industry, service or government agency in a supervised position related to major. May be repeated. Prerequisite: consent of cooperative education program.

#### **CRJU Criminal Justice**

CRJU 210. Introduction to Criminal Justice (3). Fall, Spring. Philosophical, historical, operational aspects of criminal justice agencies and processes in a framework of social control in a democracy. Crime and corrections problems and response of criminal justice agencies to them.

CRJU 220. Law Enforcement in American Society (3). Fall. Overview of the police role in modern American society; emphasis on problems and issues confronting police and solutions within an organizational framework. Prerequisite: CRJU major.

CRJU 230. Investigations: Theory and Practice (3). Spring. Investigator's role in various types of investigations criminal, civil, personal history and liability. Techniques of evaluation and preservation of data, sources of information; processes of specialized investigations. Prerequisite: CRJU major.

CRJU 240. Report Writing for Criminal Justice (3). Spring. A writing intensive course that places special emphasis on familiarizing students with the various writing requirements for criminal justice professionals. Prerequisites: CRJU 210 and ENG 112. Offered at Firelands only.

CRJU 320. Crime Prevention and Security (3). Spring. A critical examination of crime prevention and security practices and approaches; emphasis on evaluating the effectiveness and problems of various approaches. Prerequisite: CRJU major.

CRJU 330. Juvenile Justice Subsystems (3). Fall. Examination of the varied agencies, methods and techniques used in handling deviant youths (historic and contemporary); emphasis on agency effectiveness and perspectives. Prerequisite: CRJU major.

CRJU 340. Drugs, Crime and Criminal Justice (3). Spring. Explores the legal and social aspects of drug and alcohol use and the criminal justice response to that use. Topics include types and effects of drugs, relationship to crime and treatment of drug users. Criminal justice credit not given for both CRJU 340 and HED 340. Prerequisite: CRJU major.

CRJU 395. Workshop - Current Topics (1-3). May be repeated. Any semester. Special topics or issues in criminal justice, primarily of a current or unique interest to students/practitioners. Prerequisite: Fall and Spring terms only; CRJU major.

CRJU 410. Victimology (3). Spring. An examination of the victim in the criminal justice system. The course covers the development of victimology, basic concepts and issues, specific types of victimization and societal/system response to the victim. Prerequisite: CRJU major.

CRJU 420. The Criminal Courts (3). Fall. Structure, jurisdiction, procedures including the nature of criminal law and the interaction of other criminal justice agencies (police, prosecutor, probation) with the courts. Prerequisite: CRJU major.

CRJU 430. Procedural Rights (3). Spring. Rights afforded to individuals who come to the attention of the criminal justice system. How these rights are created and rejected by the court system. Focus on the Bill of Rights, 14th Amendment, and Supreme Court cases. Prerequisite: CRJU major and CRJU 420.

CRJU 470. Independent Study in Criminal Justice (1-3). Fall, Spring, Summer. Student designs and carries out study or special project in area of interest. Prerequisite: CRJU major or consent of instructor. May be repeated.

CRJU 480. Senior Seminar in Criminal Justice (3). Fall, Spring, Summer. Consideration and evaluation of selected policies and practices in criminal justice field. Attempt to integrate criminal justice field and to focus on common problems and concerns. Problems of theoretical and practical nonconvergence. Individual research interests explored, formalized, reported. Required of all CRJU majors. Prerequisites: senior standing and completion of 25 hours of CRJU core courses.

CRJU 486. Workshop in Criminal Justice (1-3). On demand. Study of a particular topic in criminal justice. Topics may vary. May be repeated. Prerequisite: CRJU major or instructor permission.

CRJU 491. Practicum (1-12). Fall, Spring, Summer. Experience working in a criminal justice agency under both practitioner and academic supervision. Emphasis on practice rather than observation. May be repeated. Prerequisites: permission of program director and completion of ENG 112 or equivalent. Concurrent enrollment in other courses permitted with permission of program director. Graded S/U.

CRJU 492. Practicum Seminar (3). Fall, Spring, Summer. Analysis of problems and experiences encountered in the practicum. Relations between field experiences, coursework and related literature. Prerequisite: permission of director. Corequisite: CRJU 491.

### **CS Computer Science**

CS 100. Computer Basics (3). Fall, Spring, Summer. Computer technology and related social issues. Hardware, software, applications in diverse areas. Problems concerning computerized services, data banks, governmental controls. Problem solving using software packages (such as hypertext, spreadsheets, word processing, database, presentation graphics, etc.). Credit not allowed for both CS 100 and MIS 200. Credit not applicable toward major or minor in computer science. Prerequisite: one year of high school algebra or MATH 095. Extra fee. Approved for web delivery.

CS 101. Introduction to Programming (3). Fall, Spring, Summer. Algorithms. Programming language features: expressions, assignments, functions with parameters, conditions, loops, arrays. Several programming assignments required. Does not apply to the computer science major or minor. Credit not allowed for both CS 101 and CS 261. Prerequisite: two years of high school algebra or MATH 095. Extra fee.

CS 180. Introductory Topics (1-3). Introduction to the use of a programming language or other computer software. Can be repeated to three hours if topics differ. Credit not applicable to major or minor in computer science. Extra fee.

CS 181. Introductory Topics (1-3). Introduction to the use of a programming language or other computer software. Can be repeated to three hours if topics differ. Credit not applicable to major or minor in computer science. Graded S/U.

CS 201. Introduction to Object-Oriented Programming (3). Fall, Spring, Summer. Introduction to programming using the object-oriented paradigm. Fundamental data types and control structures; objects and classes; string, vectors and arrays. Introduction to data representation. Prerequisite: CS 101 or CS 261 or two years of high school algebra or MATH 112 or equivalent.

CS 202. Objects and Data Abstraction (3). Fall, Spring, Summer. Inheritance; virtual functions and polymorphism. Object-oriented design; recursion; sorting and searching algorithms; operator overloading; templates; pointers; elementary data structures including lists, stacks, and queues. Prerequisite: Grade of C or better in CS 201.

CS 217. Computer Organization (3). Fall, Spring, Summer. Organization of digital computer hardware. Combinational and sequential circuits. Assembly language concepts. ALU, CPU, and control unit design. Projects will be implemented on a circuit simulator. Prerequisite: CS 201 or CS 205.

CS 261. Business Programming Principles (3). Fall, Spring. Programming in a modern high-level language with emphasis on business-related applications. Introduction to structured programming, algorithms, and data structures. For students in the College of Business Administration only. Credit not allowed for both CS 101 and CS 261. Prerequisite: MIS 200.

CS 280. Intermediate Topics (1-3). Introduction to use of a programming language or other computer software. For students who already know how to program. Can be repeated to three hours if topics differ. Credit not applicable to major or minor in computer science. Prerequisite: CS 101 or CS 201 or equivalent. Approved for web delivery.

CS 290. Co-op Preparation (1). Fall. Introduction to the co-op experience (benefits, scheduling alternatives, etc.). Career options in computer science. Job search strategies. Professional ethics. Credit not applicable to major or minor in computer science. Prerequisite or corequisite: CS 202 or CS 215. Graded S/U.

CS 314. Web Application Development (3). Spring. A survey of web technologies and emerging web standards, protocols, markup languages, and scripting languages. Both client-side and server-side technologies and scripting languages are covered. Prerequisite: CS 201 or CS 205.

CS 316. Windows Application Development (3). Spring, Summer. Implementing a graphical user interface on the Windows operating system with object-oriented programming. Dialogs and controls; messages and commands; the view/document paradigm; database access; SDI and MDI. Prerequisite: CS 202 or CS 215.

CS 324. Usability Engineering (3). Spring. User interface design and human-computer interaction. Understanding the user. Design and prototyping of highly usable interfaces. Design notations, dialog styles, screen layouts, and usability testing. Event-driven programming language for rapid prototyping. Prerequisite: CS 202 or CS 215.

CS 325. Systems Programming (3). Fall, Spring. Systems programming using C++. Class facilities and design using templates, iterators. Interrupts and functions as parameters. Design methodology. Elementary parsing, language translation. Large programming project required. Preprocessors, link editors, source code control facilities. Prerequisites: CS 217 and grade of C or better in CS 202 or CS 215.

CS 327. Operating Systems and Networks (3). Fall. Design of multiprocessing operating systems, process scheduling and synchronization. Device drivers and communication hardware. Networks and their topologies. Communication protocols and client/server environments with implication for operating system services and user programs. Prerequisites: CS 217 and either CS 202 or CS 215.

CS 335. Data Structures and Algorithms (3). Fall. Specification, encapsulation, adaptation, use and reuse of advanced data structures and related algorithms. Criteria for analysis and selection of software components for use in applications. Prerequisite: CS 202 or CS 215.

CS 360. COBOL Programming (3). Spring, Summer. COBOL programming language and techniques for use; report generation; table handling; sorting; sequential and random-access data files; debugging techniques; COBOL standards. Prerequisite: Grade of C or better in CS 101 or CS 201 or CS 261 or equivalent. Extra fee.

CS 371. Introduction to Unix (1). Fall, Summer. The Unix operating system; utilities; file structure; pipes; filters; shell programming. Prerequisite: CS 101 or CS 201 or CS 261.

CS 380. Special Topics in Computer Science (1-3). Detailed study of the professional and ethical issues pertaining to computer science or of a particular computer system or programming language which is not covered elsewhere in the curriculum. May be repeated if topics differ. Prerequisite: CS 201 or CS 205. (Additional prerequisites, if any, will be announced.) Approved for web delivery.

CS 390. Practicum in Computer Science (1-6). For students working in internship or co-op programs. Written report required. Does not apply to major or minor in computer science. May be repeated to three hours. Students working through the

co-op office may earn up to six hours of credit. Prerequisite: consent of department. Graded S/U.

CS 408. Advanced Operating Systems (3). Spring. Structure of operating systems. Physical input-output, buffering, interrupt processing. Memory, processor, device, information management; resource management interdependencies. Job and processor scheduling. Prerequisite: CS 327.

CS 409. Language Design and Implementation (3). Fall. Fundamental concepts of languages. Processors, data, operations, sequence control, data control, storage management, syntax, translation. Prerequisite: CS 217 and either CS 325 or CS 335.

CS 410. Formal Language Theory (3). Fall (odd years.) Various types of languages (context-sensitive, context-free, regular). Discussion of recognition devices such as pushdown automata, linear bounded automata and Turing Machines. Some topics of current interest. Prerequisite: MATH 222 or MATH 322.

CS 417. Introduction to Parallel Computing (3). Spring (even years). Principles and practice of parallel computing. Parallel program design, implementation and evaluation of parallel programs for shared memory, local memory and vector architectures. Prerequisite: CS 327.

CS 420. Artificial Intelligence Methods (3). Summer (odd years). Intermediate AI programming with application to representative problems requiring searching, reasoning, planning, matching, deciding, parsing, seeing and learning. Prerequisite: Junior or senior standing.

CS 425. Computer Graphics (3). Spring (every year); Summer (even years). Graphic I-O devices; two-dimensional and three-dimensional display techniques; display processors; clipping and windowing; hidden-line removal; data structures for graphics. Prerequisites: CS 215 or CS 335 and one of MATH 222, MATH 322, MATH 332.

CS 429. Data Communication and Networks (3). Spring. Data communication concepts; network topologies; transmission media; network access control; communication protocols; network architecture; LANs, MANs, and WANs; internetworking. Prerequisite: CS 327.

CS 440. Optimization Techniques (3). Fall (even years). Linear programming, game theory, PERT, network analysis; duality theory and sensitivity analysis; applications. Computer programs written to implement several techniques. Prerequisites: CS 101 or CS 201 and either MATH 222 or MATH 322.

CS 442. Techniques of Simulation (3). Spring (odd years). Principles of simulation and application of simulation languages to both continuous and discrete systems. Prerequisites: MATH 247 and either CS 202 or CS 215.

CS 451. Numerical Analysis (3). Fall. Study of numerical methods for interpolation and approximation, integration and differentiation, solution of non-linear equations and systems of linear and non-linear equations. Prerequisites: CS 101, or CS 201 and MATH 332. Not open to students with credit for MATH 451.

CS 452. Numerical Analysis (3). Spring. Numerical methods for the algebraic eigenvalue problem, solutions of ordinary differential equations; topics from approximation theory, numerical solution of partial differential equations, optimization techniques and sparse matrix computations. Prerequisites: CS 451 and MATH 337. Not open to students with credit for MATH 452.

CS 462. Database Management Systems (3). Fall. Semantic models for conceptual and logical design of databases. Detailed study of relational systems: design, dependency and normal forms. Use of interactive and embedded query language. Overview of topics such as database connectivity, security and object-oriented systems. Prerequisite: CS 202 or CS 215.

CS 464. Software Development (3). Fall. In-depth study of all aspects of software development process: user requirements, specifications, design, coding, testing, maintenance, documentation, management. Use of CASE tools for analysis and design. Prerequisite: CS 324.

CS 480. Seminar in Computer Applications (1-3). Prerequisite: consent of instructor. May be repeated up to six hours.

CS 490. Independent Project (1-3). Readings and/or computer implementations in area of interest to individual student. Does not apply to major or minor in computer science. May be repeated up to six hours. Graded S/U.

### **CST Computer Science Technology**

CST 135. Introduction to Web Page Development (1). Introduction to the creation of pages for the World Wide Web. Pages will be created using text editor. Features to be implemented include text formatting, links, text and background colors, images and image formats, maps, tables, and frames. Prerequisite: CS 101 or CS 100 or MIS 200 or permission of CPT program director. Offered at Firelands only. Approved for web delivery.

CST 136. Advanced Web Page Development (1). Creation of interactive Web pages. Topics include creating forms, using scripts to create dynamic Web pages, multimedia enhancement of Web pages, and introduction to Web page development packages. Prerequisite: CST 135 or permission of CPT program director. Offered at Firelands only. Approved for web delivery.

CST 141. Networking Fundamentals (2). Networking components (hardware) and basic network design. Basic networking terminology and concepts. Topics include the Open Systems Interconnect (OSI) model, contrasting TCP/IP and OSI, and network topologies. Prerequisite: CS 100 or CS 101 or MIS 200 or permission of instructor. Offered at Firelands only.

CST 142. Beginning Router Configuration (2). Basic router elements. IP addressing and configuration. Router user interface, setup and configuration. Fundamentals of TCP/IP. Prerequisite: CST 141. Offered at Firelands only.

CST 181. Network and Internet Principles (3). Computer networking terminology and technology overview. Hardware and software components, communications transmission and protocols, history and uses of the Internet. Activities include accessing shared resources and using Internet services (email, telnet, ftp, WWW). Prerequisite: CS 100 or CS 101 or MIS 200 or permission of instructor. Offered at Firelands only.

CST 261. Microcomputer Database Systems (3). Database principles using package in current, general use on microcomputers. Actual application of software capabilities in realistic situations. Prerequisite: CS 101 or permission of instructor. Offered at Firelands only. Extra fee.

CST 265. Systems and Procedures (3). Continued study of the design and implementation of data systems as they apply to business. Integrated management information systems are created using contemporary microcomputer software packages. Prerequisite: CST 261 or permission of instructor. Offered at Firelands only. Extra fee.

CST 275. Microcomputer Systems (3). Microcomputer hardware and software selection and installation. Software selection and implementation, including networking and communications software. Microcomputer issues. Prerequisite: CS 101 or permission of instructor. Offered at Firelands only. Extra fee.

CST 281. Network and Internet Implementation (3). Installation and configuration of microcomputer network and Internet servers. Networking hardware, software, protocols, functions. Two hours lecture, two hours lab weekly. Prerequisites: CST 181 and CS 101 or permission of instructor. Offered at Firelands only.

CST 290. Experimental Studies in Computer Science (1-3). Contemporary computer topics. May be repeated up to 9 credits if topics vary. Offered at Firelands only.

CST 291. Field Experience (1-3). Paid field work in data processing or computer networking applications related to an occupational objective. One credit requires 180 hours of work. May be repeated up to 3 credits. Prerequisite: permission of site supervisor and adviser. Offered at Firelands only.

#### **DANC Dance**

DANC 101. Folk and Square Dance (1). Fall. Two contact hours. Dances of American and international cultures examined through active participation. Dance costumes, customs, music introduced with cultural information for more thorough understanding of specific dances. May be repeated up to four hours.

DANC 102. Ballroom Dance I (1). Fall, Spring. Two contact hours. Basic step patterns of social dances: Foxtrot, waltz, swing, polka, cha-cha. Leading and following as a dance partner; music and rhythms. May be repeated up to four hours.

DANC 107. Jazz Dance I (1). Fall, Spring, Summer. Two contact hours. For student with limited or no previous dance training. Studio instruction of basic jazz dance techniques and historical origins. May be repeated up to four hours.

DANC 110. Tap Dance I (1). Fall, Spring, Summer. Two contact hours. For student with limited to no previous dance training. Studio instruction of basic tap dance technique and historical origins. May be repeated to four hours.

DANC 115. Modern Dance I (2). Fall, Spring. The first in a series of progressions in modern dance, exploring basic movement skills and correct body alignment; may be repeated up to six hours. Extra fee.

DANC 120. Classical Ballet I (2). Fall, Spring. Studio instruction of classical ballet fundamentals with emphasis on correct body alignment, barre and basic center work; may be repeated up to six hours. Prerequisite: beginning competency and permission of instructor. Extra fee.

DANC 207. Jazz Dance II (2). Fall, Spring. Four contact hours. Second in a series of jazz dance technique level which includes extended center combinations and complex rhythms. May be repeated to six hours. Prerequisites: DANC 107, DANC 120 and/or permission of instructor.

DANC 215. Modern Dance II (2). Fall, Spring. The second in a series of progressions, including studio instruction in modern dance with floor and center work in varying modern styles; may be repeated up to six hours. Prerequisite: DANC 115 or permission of instructor. Extra fee.

DANC 220. Classical Ballet II (2). Fall, Spring. The second of a graded series of progressions, including studio instruction in classical ballet techniques

with emphasis on adagio and allegro enchainements; may be repeated up to six hours. Prerequisite: DANC 120 or permission of instructor. Extra fee.

DANC 224. Dance Performance Workshop (1). Fall, Spring. Experience in choreography and participation as members of the concert group; may be repeated up to six hours. Prerequisites: audition and permission of instructor.

DANC 303. Social and Cultural Dance - Performance and Pedagogy (3). Fall. Social and cultural dance skills and techniques applying introductory teaching methods. Two one-hour lectures and one two-hour laboratory.

DANC 307. Jazz Dance III (2). Spring alternate years. Four contact hours. Third in a series of jazz dance technique levels which includes professional training for performance, incorporating artistry and aesthetic awareness. Prerequisites: DANC 207 and/or permission of instructor.

DANC 315. Modern Dance III (1). Fall, Spring. The third in a graded progression including studio instruction in varying styles of modern dance. Emphasis will be placed on horizontal and oblique design, turns, falls, jumps, leaps and complicated rhythms. May be repeated up to six hours. Prerequisite: DANC 215 or permission of instructor. Extra fee.

DANC 320. Classical Ballet III (1). Fall, Spring. The third in a graded series of progressions, including studio instruction in classical ballet techniques, added difficulty in barre, adagio and allegro work and introduction to pointe work. May be repeated up to six hours. Prerequisite: DANC 220 or permission of instructor. Extra fee.

DANC 322. Pointe Technique I (1). Fall, Spring (alternating years). Two contact hours. Studio instruction of pointe technique in ballet genre for students with strong technical base. No experience in pointe necessary. May be repeated up to four hours. Prerequisite: DANC 120 and/or permission of instructor. Extra fee.

DANC 325. Theory and Methods of Teaching Dance (1). Fall alternate years. A seminar experience in pedagogical practices, in classical ballet and modern dance forms. Prerequisites: DANC 215, DANC 220 or permission of instructor.

DANC 326. Dance Composition (2). Spring. Basic principles of form and flow of movement and their application to compositions in dance. Prerequisites: DANC 215, DANC 220 or permission of instructor.

DANC 327. Choreography Workshop (1). Fall. Studio analysis of the elements of choreography, development of dance compositions and evaluation of dance compositions, specific assignments of selected problems. May be repeated up to six hours. Prerequisite: DANC 326 or permission of instructor.

DANC 387. Practicum in Dance (1-4). Fall, Spring, Summer. Under supervision of dance faculty in School of HMSLS; petitioning required before registration; credit hours approved separately by program area. Prerequisites: sophomore or junior standing and approval of dance faculty.

DANC 424. Dance History I (3). Fall alternate years. The effects of culture, philosophy, persons and events on dance from primitive times to 1900s.

DANC 425. Dance History II (3). Spring alternate years. Dance developments from 1900 to present; influential events, personalities, technologies and philosophies.

DANC 426. Dance Production (3). Spring. Classroom and hands-on experience; problems and techniques in dance lighting, sound, costuming, direction, publicity and general management.

DANC 470. Independent Study in Dance (1-3). Fall, Spring, Summer. In-depth study project of topic of particular significance to student. Project must be approved by project supervisor and division chair before registration. May be repeated. Prerequisite: permission of instructor.

DANC 487. Practicum in Dance (1-6). Fall, Spring, Summer. Under supervision of dance faculty in School of HMSLS; petitioning required before registration; credit hours approved separately by program area. Prerequisites: junior or senior standing and approval of dance faculty.

### **DESN Mechanical Design**

DESN 104. Design and Engineering Graphics I (3). Fall, Spring. Design as process and engineering graphics as the vehicle to communicate problem solutions. Documented design analysis, freehand sketching, geometric construction, orthographic projection; shape, size and position dimensioning and isometric pictorial drawing. One two-hour lecture and one two-hour laboratory per week. Extra fee.

DESN 131. Basic Computer-Aided Design (3). Fall, Spring. Introduction to CAD-based application. Construction of two-dimensional engineering drawings using a CAD system, with an emphasis upon geometric construction, orthographic projection, dimensioning, basic pictorials, and presentation. One two-hour lecture and one two-hour laboratory per week. Prerequisite: DESN 104 or ARCH 105, or permission of instructor. Extra fee.

DESN 203. Advanced Computer-Aided Design (3). Fall. Intermediate CAD course focusing on 3-D solid modeling and the conversion of these models into engineering detail drawings and assemblies. One two-hour lecture and one two-hour laboratory per week. Prerequisite: DESN 131 or permission of instructor. Extra fee.

DESN 204. Engineering Design and Production Drawing (3). Spring. Application of design analysis, concepts of descriptive geometry, and engineering graphics for design solutions. Developing working drawings with an emphasis on dimensioning, tolerancing and current ASME Standards for GD&T. One two-hour lecture and one two-hour laboratory per week. Prerequisite: DESN 203. Extra fee.

DESN 205. Tool, Die, Jig, and Fixture Design (3). Importance and economics of tooling designed for mass production; topics include jigs, dies, design and construction, emphasis placed on die design problems and solutions. Field visits to die-stamping plants. Two hours lecture, six hours laboratory. Prerequisite: DESN 104. Offered at Firelands only. Extra fee.

DESN 243. Statics and Strength of Materials (3). Fall, Spring. Fundamentals of statics including vectors, centroids, moment of inertia, free body diagrams and structural systems. Strength of materials including simple and combined stress, bending, shear and torsional stress. One two-hour lecture and one two-hour laboratory per week. Prerequisite: MATH 128 or MATH 112 and MATH 122 and MATH 129 or MATH 129 and MATH 131 or permission of instructor. Extra fee.

DESN 290. Problems in Design Technology (1-3). For advanced students wanting to conduct intensive study of selected problems in design technology. May be repeated up to 6 credits if topics vary. Prerequisites: sophomore standing and consent of instructor. Offered at Firelands only.

DESN 303. Three-D Parametric Design & Prototyping (3). Fall. Three-D Parametric Design techniques applied to part and assembly modeling and production drawings; including presentation design synthesis and rapid prototyping. One two-hour lecture and one two-hour laboratory per week. Prerequisite: DESN 204.

DESN 304. Mechanical Design (3). Spring. Engineering graphics and CAD principles applied to the design of components, assemblies, machines, and production systems. Selection and application of standard mechanical components. One two-hour lecture and one two-hour laboratory per week. Prerequisite: DESN 303. Extra fee.

DESN 305. Technical Illustration (3). Fall. Technical illustration for design presentation, assembly, repair and advertising manual graphics. A variety of equipment, materials and techniques to accomplish various pictorial representations and design illustrations; with a focus upon electronic media. One two-hour lecture and one two-hour laboratory per week. Prerequisite: DESN 304. Extra fee.

DESN 404. Advanced Modeling, Simulation and Analysis (3). Fall. Study and application of computer modeling systems using interactive methodologies for modeling, simulation and presentation analysis. One two-hour lecture and one two-hour laboratory per week. Prerequisite: DESN 304. Extra fee.

DESN 452. Design in Industry (3). Spring. Capstone course for mechanical design. Systems approach applied to solution of one or two product design problems; emphasis on feasibility of design solutions, manufacturability and consideration of assembly. One two-hour lecture and one two-hour laboratory per week. Prerequisite: DESN 404. Extra fee.

DESN 490. Problems in Design Technology (1-3). Independent Study. For advanced students wanting to conduct intensive study of selected problems in design technology. Prerequisite: junior standing and consent of adviser. May be repeated. Graded S/U.

#### **DHS Human Services**

DHS 300. Research Methods for the Human Services (3). Fall, Spring. Survey of research methods including research design, measurement and sampling, survey, experimental and field methods and data collection and analysis. Emphasis on interpreting and critically evaluating research for human services. Prerequisite: CRJU, SOWK, or GERO major. Approved for web delivery.

DHS 330. Interviewing and Observation (3). Fall, Spring. Development of interviewing and observational skills used in working with diverse populations in human service fields. Examine interviewing from various perspectives for different purposes: clinical, forensic, organizational, and social. Prerequisite: CRJU, SOWK, GERO major.

#### **ECON Economics**

ECON 100. Development of the American Economy (3). Fall. Study from colonial times to present to provide perspective for understanding current economic problems. How Americans lived, changes in population and income distribution, agriculture, industry, technological change, labor, transportation, money and banking, foreign trade, role of government.

ECON 200. Introduction to Economics (3). Fall, Spring. Alternative economic goals; economic growth, full employment, price stability, fair income distribution, economic security, economic freedom, consumer sovereignty, efficiency. Recommended for students taking only one ECON course. Does not count toward the total hours of economics required for BSBA, BS in economics, BA in economics, or minor in economics; cannot be used to satisfy specialization, non-

business nor free elective requirements for BSBA degree. No credit for students who have credit for either ECON 202 or ECON 203. Applicable to the social sciences general education requirement.

ECON 202. Principles of Microeconomics (3). Fall, Spring. Price and allocation of resources. Demand, supply; price theory; income distribution; market failure; current problems and public policy. Enhances students' ability to evaluate economic policy. Recommended before ECON 203. Prerequisite: high school algebra or equivalent. Applicable to the social sciences general education requirement.

ECON 203. Principles of Macroeconomics (3). Fall, Spring. National income and employment, inflation, banking system, monetary and fiscal policy; economic growth and development; international economics. Develops students' understanding of tradeoffs and enhances critical reasoning abilities. Prerequisite: ECON 202 or with consent of department. Applicable to the social sciences general education requirement.

ECON 301. Price Theory and Applications (3). On demand. This is a non-calculus version of ECON 302 and is designed for students pursuing the BA in economics. Course topics include theory of demand, of the firm, of production and distribution. Compares market structures. Factor price determination and welfare economics. Prerequisites: ECON 202, ECON 203 and MATH 120 or MATH 122 or equivalent or higher. No credit is allowed toward the BSBA degree or the BS in economics degree.

ECON 302. Intermediate Microeconomic Theory (3). Fall, Spring. Theoretical course on decisions by consumers and firms. Theory of demand, of the firm, of production and distribution. Compares market structures. Factor price determination and welfare economics. Prerequisites: ECON 202, ECON 203, and either MATH 126, MATH 131 or equivalent.

ECON 303. Intermediate Macroeconomic Theory (3). Fall, Spring. Theoretical course on how the economy as a whole operates. Measurement and determination of national income, employment, the price level, interest rates and growth. International influences on the economy. Alternative theories are compared. Prerequisites: ECON 202 and ECON 203.

ECON 304. Managerial Economics (3). Fall, Spring. Applications of microeconomic theory to decision-making process of the firm. A profit maximizing framework is developed to apply and adapt to a diverse set of issues related to contrasting market structures and alternative pricing policies. Prerequisites: ECON 202, ECON 203, and STAT 212.

ECON 311. Money and Banking (3). Fall, Spring. Monetary policy and financial institutions. Causes and effects of changes in the money supply. Interest rates, commercial banking, central banking policy and international monetary institutions. Prerequisites: ECON 202 and ECON 203.

ECON 321. Labor Economics (3). Spring. Economics of manpower employment and labor market; labor organizations, collective bargaining, regulation of labor by government, wage determination, unemployment and social security. Prerequisites: ECON 202 and ECON 203.

ECON 323. Poverty and Discrimination (3). Fall alternate years. Analysis of poverty, emphasis on effect of discrimination on economic opportunities of the poor. Measures of poverty and income inequality and their use in development of public policy over time. Effect of poverty on women, public policy directed toward poor women, international comparison of poverty and social responses to poverty. Prerequisites: ECON 202 and ECON 203 or consent of instructor.

ECON 332. State and Local Government Finance (3). Fall, Spring. Economic functions of state and local governments; revenue sources, expenditures, debt and intergovernmental fiscal relations. Prerequisites: ECON 202 and ECON 203 or consent of instructor.

ECON 335. Environmental Economics (3). Fall. Implications of environmental philosophies; benefit-cost analysis with applications; economics of pollution and resource management; application of economic tools to environmental problems. Prerequisite: ECON 202 or consent of instructor.

ECON 351. International Trade and Finance (3). Fall, Spring. Structure and regulation of foreign trade, mechanics of international finance, new elements in U.S. foreign trade. Prerequisites: ECON 202 and ECON 203, or ECON 200 and BA 390.

ECON 400. Mathematics for Economists (3). Fall. Elementary mathematical methods and basic applications to economic theory. Not recommended for students who have had MATH 131 or above.

ECON 401. Mathematical Economics (3). Spring. Economic theory in mathematical context; microeconomic and macroeconomic models, their structure and analysis. Constrained optimization. Prerequisites: ECON 400 or equivalent of calculus, and ECON 302 or ECON 303.

ECON 402. Econometrics (3). Fall. Statistical techniques used to measure economic data and to test validity of theoretical models. Prerequisites: STAT 212 and ECON 400 or equivalent; or consent of instructor.

ECON 404. Business Conditions (3). Spring. Components of gross national product, statistical measurement of business fluctuations. Determinants of the level of economic activity. Keynesian, monetarist and other theories of business cycles. Methods of macroeconomic forecasting. Prerequisites: ECON 303 or ECON 311 and STAT 212.

ECON 414. Monetary and Fiscal Policy (3). Spring. Objectives, means and analysis of monetary and fiscal control; effect on total economic activity. Prerequisite: ECON 303 or ECON 311.

ECON 421. Labor-Management Relations (3). Fall. Employer-employee relations from historical and legal aspects to collective bargaining process, including mediation and arbitration procedures. Prerequisite: ECON 200, ECON 202 or consent of instructor.

ECON 422. Labor Relations Policy (3). Spring. Collective bargaining and labor negotiation and their ties to federal and state legislation process, including negotiation and arbitration procedures. Prerequisite: ECON 200 or ECON 202 or consent of instructor.

ECON 426. Public Health Economics (3). Spring. Role of economics of health care and more specifically public health. Basic micro economics are applied to health care and how health care economics might differ from economics of the firm, examines trade-offs between approaches to health care and economic policy relative to public health. Prerequisite: ECON 200, ECON 202 or consent of instructor.

ECON 431. Public Finance (3). Fall. Survey of government finance. Public expenditures, taxation and debt; emphasis on federal level. Prerequisites: ECON 202 and ECON 203 or consent of instructor.

ECON 440. Women, The Economy and Society (3). Spring. Role of gender in the world economy, varieties of feminism, feminization of poverty, the relationship between household and labor market roles, the integration of women into the working world, causes of and responses to the gender wage gap, causes and alternative reactions to sex discrimination in labor markets. Prerequisite: ECON 202 or consent of instructor.

ECON 451. International Trade (3). Fall. Microeconomic aspects of international economics. Comparative advantage, gains from trade, free trade agreements, protection and real wages, international factor movements, commercial policy including analysis of tariffs, quotas and voluntary export restraints. Prerequisite: ECON 351 or consent of instructor.

ECON 452. International Monetary Economics (3). Spring. Macroeconomic side of international economics. Open economy macroeconomics, exchange rates and the balance of payments, fiscal and monetary policy, fixed versus floating exchange rates, budget deficits and international coordination of macroeconomic policies. Prerequisites: ECON 303 (or ECON 311) and ECON 351 or consent of instructor.

ECON 454. Economic Development (3). Fall. Obstacles to and current efforts for promotion of economic growth in emerging nations. Prerequisite: ECON 202 or consent of instructor.

ECON 462. Urban Economics (3). Spring. Urban spatial theory and analysis, economic analysis of urban problems including poverty, housing, transportation, the environment and public finance. Prerequisites: ECON 202 and ECON 203.

ECON 471. Industrial Organization: Study of Business Size and Competition (3). Fall. Study of size and behavior of firms, especially large firms, and how size and behavior influence profits, pricing, costs, product differentiation and innovation. Emphasis on policy issues about size and regulation. Prerequisite: ECON 202 or consent of instructor.

ECON 472. Comparative Economic Systems (3). Spring. Economic structures, conditions, problems and policies in a selection of countries. Prerequisites: ECON 202 and ECON 203 or consent of instructor.

ECON 473. History of Economic Thought (3). Fall. Development of economics and economic analysis from Adam Smith to J.M. Keynes. Prerequisites: ECON 202 and ECON 203.

ECON 476. Seminar in Contemporary Economic Problems (3). On demand. Interested students should consult with chair of department.

ECON 491. Studies in Economics (1-3). On demand. Treatment of selected areas in depth. Offered to individual on lecture basis or in seminar depending on student needs and material. May be repeated to six hours.

ECON 495H. Readings for Honors in Economics (3-6). On demand. For economics major with accumulative GPA of 3.0; normally culminates in treatise or comprehensive examination which must receive approval of department. Consult department chair. Prerequisite: consent of department.

#### **ECT Electronics & Computer Technology**

ECT 100. Electric Codes and Regulations (1). National Electric Code and its application to wiring installations. Electric principles that dictate the provisions of the code. Wiring installations are examined for adequacy and compliance with the code. Offered at Firelands only.

ECT 191. Energy, Power, Instrumentation and Control (3). Principles of automated systems, how machines work and emphasizing energy, power, measurement and controlling devices. One and one-half hour lecture and three hours laboratory. Extra fee.

ECT 196. Electrical-Electronic Systems (3). Fall, Spring. Electrical principles, instruments, electrical machines, selected electronic devices and computer control systems. Also, fabrication and assembly techniques are covered. One and one-half hours of lecture and three hours of laboratory. Prerequisite: None. Extra fee.

ECT 240. Electric Circuits (3). Fall. Electron theory; DC and AC units and theory; circuit components; circuit analysis techniques; RLC circuits; power concepts; use of test instruments. Two hours lecture and two hours laboratory. Prerequisite: MATH 120 or consent of instructor. Extra fee.

ECT 241. Electronic Circuits (3). Spring. Analog and digital electronic circuits and semiconductors. Design and application of power supplies, amplifiers, oscillators and digital gates to communication, instrumentation and process control. Two hours of lecture and two hours of laboratory. Prerequisite: ECT 240 or permission of instructor. Extra fee.

ECT 244. Communication Circuits (3). Communication circuits including telecommunications and amplifiers; amplifier design, components and applications, oscillators, communication components and principles of receivers and transmitters. Six hours of lecture and laboratory. Prerequisite: ECT 241 or permission of instructor. Offered at Firelands only. Extra fee.

ECT 245. Communications Systems (4). Applications of principles of communications circuits to large and complex systems including telecommunications. Techniques of transmission and radiation of electromagnetic energy applied to pulse, television and microwave systems. Six hours of lecture and laboratory. Prerequisite: ECT 241. Offered at Firelands only. Extra fee.

ECT 247. Electrical Measurements and Instrumentation (3). Electrical measurement and instrumentation devices, transducers and elements; principles underlying their design and use. Two hours of lecture, three hours of laboratory. Prerequisite: ECT 241. Offered at Firelands only. Extra fee.

ECT 248. Industrial Equipment and Controls (3). Automation and industrial control principles. Study and application of typical devices such as time control switches, motor controls, servo-mechanism, photoelectric switches. Two hours of lecture, three hours of laboratory. Prerequisite: ECT 241. Offered at Firelands only. Extra fee.

ECT 249. Digital Electronic Components and Systems (3). Spring. Basic digital system logic analysis and synthesis techniques; number systems and codes; Boolean algebra and circuit minimization techniques. Characteristics of modern digital integrated circuit components. Two hours lecture and three hours of laboratory. Prerequisite: ECT 191 or ECT 196 or consent of instructor. Extra fee.

ECT 250. Real Time Microcomputer Systems for Industrial Control (4). Principles and practices of interfacing microcomputers in the real time environment of industrial process control. Organization and operation of computers, various process control modules (A/D and D/A), signal conditioning and converting, and design of process control systems. Three hours of lecture, three hours of laboratory. Prerequisite: ECT 249 or consent of instructor. Offered at Firelands only. Extra fee.

ECT 290. Studies in Electronic Technology (1-3). Experimental study projects, seminars and workshops dealing with topics in industrial technology. May be repeated up to six credits if topics vary. Offered at Firelands only.

ECT 300. Electric Machinery and Controls (3). Spring. Electric motors, generators, power electronic controls; operating characteristics, selection, testing and control of direct current, single and three-phase machinery. One and one-half hours of lecture and three hours laboratory. Prerequisite: ECT 241. Extra fee.

ECT 310. Programmable Logic Controllers (3). Fall. A study of programmable logic controllers including, programming in ladder diagrams for counting, sequencing and timing functions, input/output modules, planning, installation and applications. One and one-half hours of lecture and three hours of laboratory. Prerequisite: ECT 196. Extra fee.

ECT 341. Electronic Devices (3). Fall. A study of semiconductor devices, FET transistors, operational amplifiers, power-electronic and optoelectronic devices including theory of operation, specifications, performance testing and applications. One and one-half hours lecture and three hour laboratory. Prerequisite: ECT 241 or consent of instructor. Extra fee.

ECT 344. Electronic Communication Circuits (3). Spring. The principles of electronic circuits as applied to large and complex telecommunication systems. One and one-half hours lecture and three hours laboratory. Prerequisite: ECT 241. Extra fee.

ECT 345. Electronic Communication Systems (3). Fall. A study of the concepts of transmission, radiation and reception of electromagnetic energy in communication systems, with focus on wave guide, television and complex telecommunication systems. One and one-half hours lecture and three hours laboratory. Prerequisite: ECT 344. Extra fee.

ECT 349. Digital Computer Analysis (3). Fall. Organization and construction of mini-micro computers, machine language programming, interfacing, including developing logic design, selection of integrated circuits, assembly, testing and system diagnostic testing procedures. One and one-half hours lecture and three hours of laboratory. Prerequisite: ECT 249 or consent of instructor. Extra fee.

ECT 357. Electrical Power Transmission (3). Fall odd years. Power converters, polyphase distribution systems including conductors, transformers, voltage regulation, protection, control, phasing and metering. Electrical codes, methods and materials used in electric installation. Problems in electrical construction work. One and one-half hours lecture and three hours laboratory. Prerequisite: ECT 191 or ECT 196. Extra fee.

ECT 358. Digital Electronics (4). Fall. Digital integrated circuit devices with medium and large scale applications. Digital families, their functions, use of specification sheets, discussion of digital system. Two and one-half hours lecture and three hours laboratory. Prerequisite: ECT 241 or PHYS 202. Extra fee.

ECT 386. Digital Communication Networks I (3). Spring. Introduction to fundamental digital communication and networking concepts and practices within workstation-centered technologies. Concept topics include: data encapsulation and transmission, and network models. Practices include those necessary for the creation of local area networks, such as workstation configuration, and router/switch setup. Prerequisite: consent of instructor.

ECT 441. Instrumentation (3). Fall. Industrial instrumentation, measuring mechanical, fluid and electric phenomenon, transducers, recorders, indicators and controllers. Principles underlying their design and applications. One and one-half hours lecture and three hours laboratory. Prerequisite: ECT 241 and CS 205 or consent of instructor. Extra fee.

ECT 453. Digital Computer for Process Control (3). Spring. Basic concepts, terminology, evaluation and types of control systems as they apply to industrial process control and positioning systems. These systems will be subdivided into measurement, controllers and final control elements. One and one-half hours lecture and three hours laboratory. Prerequisite: ECT 358 or CS 217, CS 205, MATH 131 or equivalent. Extra fee.

ECT 486. Digital Communication Networks II (3). Fall. Digital communication and networking concepts and practices with emphasis on wide area network (WAN) topologies. Concepts topics include: WAN hardware and WAN management. Practices include those necessary for the creation of WANs, such as router and server configuration. One and one-half hours lecture and three hours laboratory. Prerequisite: ECT 386. Extra fee.

ECT 490. Problems in Electronics and Computer Technology (1-3). For advanced students wanting to conduct intensive study of selected problems in electronics and computer technology. May be repeated. Prerequisite: consent of college. Graded S/U.

#### **EDAS Education Administration & Supervision**

EDAS 409. Organization and Administration of Education in American Society (3). Fall, Spring, Summer. Local, state and federal involvement in American education, current educational and legal issues, organization of schools, school finance, job placement, professional responsibilities of teachers. Prerequisite: EDFI 302/EDFI 303. C/F hours: 20.

EDAS 490. Problems in Education (1-3). For advanced student wanting to conduct intensive study of selected problems in education. May be repeated to six hours; undergraduate credit only. Prerequisite: consent of department.

#### **EDCI Educational Curriculum & Instruction**

EDCI 101. Speed Reading (2). Designed to improve study-type reading speed; leisure reading speed; adjusting reading speeds to purposes, material difficulty and background experience of reader. (Minimum score of 260 words per minute with 60th percentile comprehension on reading speed test is necessary to receive C in course.) Prerequisite: departmental testing or successful completion of EDCI 100. Clinic/lab required: 15 hrs. Extra fee.

EDCI 348. Literacy and the Young Child (3). Young child's acquisition of oral and written language, emphasis on roles of child development, social interaction, culture and environment. Prerequisite: EDFI 302 or consent of instructor. C/F hours: 30.

EDCI 349. Fundamentals of Reading (3). Basic understandings and instructional implications of reading acquisition and development from linguistic, social, psychological, cognitive, historical and curricular perspectives. Prerequisites: EDFI 302 or consent of instructor.

EDCI 357. Kindergarten-Primary Curriculum and Methods (3). Objectives, curriculum, instructional and resource materials, methods. Laboratory experience in kindergarten-primary education. Should precede semester of student teaching. Prerequisite: EDFI 302 or EDFI 342 and EDCI 348. C/F hrs: 30.

EDCI 366. Computer Utilization in the Classroom-Elementary (3). Impact of the computer on educational methods and applications in the classroom. Evaluation of software. Integration of the computer and associated technologies into the content areas. Focus on elementary classroom. Prerequisites: EDFI 302 and junior standing.

EDCI 423. Investigations in the Teaching of Mathematics (3). Research in mathematics education as it affects elementary schools. Curricular trends reflecting basic mathematical skills appropriate for elementary schools. Examination and analysis of materials for teaching mathematics. Prerequisite: EDCI 352. C/F hrs.: 30.

EDCI 492. Student Teaching (1-16). Fall, Spring. Classroom teaching at the elementary level under supervision on full-day basis. Conferences and seminars supplement program. College/program eligibility requirements must be met. C/F hrs.: 300. May be repeated. Graded S/U. Extra fee.

#### **EDFI Educational Foundations & Inquiry**

EDFI 202. Introduction to Teaching (3). Introductory clinical field experience to the education profession. Course includes 10 weeks of participant/observation in secondary and elementary classroom settings, with an emphasis on diversity of school experiences. Field component will provide opportunity to apply learning from weekly campus seminars which include the examination and application of professional educational knowledge. Prerequisites: Sophomore status recommended. Required in all teacher certification programs except those offering an approved alternative. Grade of C or better required to be eligible for student teaching. Cross-listed in EDCI. C/F hrs.: 50.

EDFI 302. Educational Psychology (3). Fall, Spring, Summer. Theory and research on learning, development, personality and motivation applied to educational processes in various learning environments. Some field or clinical work. Prerequisites: PSYC 101 and sophomore status. C/F hrs.: 20.

EDFI 303. Educational Psychology Applied to Adolescent Development (3). Fall, Spring. Theory and research on socioemotional development, cognition, learning, and motivation, as applied to educational processes in various learning environments with a concentration on the adolescent years. Co-requisite field experience: EDFI 420 recommended. Prerequisites: PSYC 101 and sophomore status.

EDFI 342. Psychology of Childhood (3). Behavior and development of children through elementary school age. Prerequisite: PSYC 101. EDFI 302 recommended.

EDFI 395. Workshop on Current Topics (1-3). Intensive educational experience on selected topics related to skill development, content update or materials development. Typically, an all-day or similar concentrated time format used. Requirements usually met within time format. May be repeated on approval of adviser.

EDFI 402. Assessment and Evaluation in Education (3). Fall, Spring, Summer. Assessment and evaluation applied to instructional procedures; construction of assessment tools; interpretations of assessment results. Prerequisites: EDFI 302 or EDFI 303. C/F hrs.: 20.

EDFI 405. Psychological Foundations of Classroom Management (3). A survey of major approaches to classroom management with particular emphasis upon the applications of different approaches to case studies, to field observations, and to personal attitudes and values. Prerequisites: PSYC 101 and either EDFI 202/EDCI 202 or EDFI 302.

EDFI 408. Education in a Pluralistic Society (3). Critical interdisciplinary examination of schooling in a democratic pluralistic society. Survey of major theories, concepts, and issues of contemporary pluralistic education. Development of a personal philosophy of education informed by debates on multiculturalism and equity. Prerequisites: EDFI 302 or EDFI 303 and junior standing or instructor's permission. C/F hrs.: 10. Applicable to the cultural diversity in the United States general education requirement.

EDFI 412. Education of Disadvantaged (2). Effects of socioeconomic deprivation on educational performance; teaching techniques appropriate to needs and characteristics of disadvantaged student. Prerequisites: education methods and EDFI 302.

EDFI 416. Philosophy of Environmental Education (3). Concepts and processes of environmental education including theories such as Toledo model, Strand approach, Environmental Studies Project, Boulder and other representative model.

EDFI 417. Urban Education (2). Research, methods and concepts from sociology and psychology discussed as basis for critically analyzing current educational practices, program and policies of urban schools. Resource people used. Library and field research required. Prerequisite: commitment to, or at least serious interest in, urban education.

EDFI 420. Practicum in Individual and Small Group Instruction (1-2). Fall, Spring. Supervised practicum experiences involving individual and small group instruction of students in grades K-12 conducted in area schools and other university/community settings. May be taken concurrently with EDFI 302, EDFI 402, EDFI 408 or EDFI 417 with instructor approval.

EDFI 429. Assessment of Young and Atypical Children (3). Fall. Concepts and principles of measurement and instruments used in assessing young and atypical children; integration of measurement and instruction. Prerequisite: EDFI 302. C/F hrs.: 20.

EDFI 460. Sex Role Stereotyping and Sex Discrimination in Education (2). Education as influential institution and process in society in terms of sexism in educational materials, curriculum, structure, federal, state, local policy responses to this concern; consideration and development of other policies for action regarding sex equity in education.

EDFI 480. Seminar in Educational Foundations (3). In-depth study of selected topics, offered on demand. May be repeated once if subject matter is different.

EDFI 481. Leadership Training in Behavior Analysis Program (1-5). Prepares individuals to function as group leaders in academic, year-long, inservice behavior analysis program. Prerequisite: permission of instructor and enrollment in behavior analysis program.

EDFI 482. Direct Study of the Child (1-5). Part of behavior analysis program. A child studied using predetermined framework.

EDFI 490. Problems in Education (1-3). For advanced student wanting to conduct intensive study of selected problems in education. May be repeated to 6 hours; undergraduate credit only. Prerequisite: permission of instructor.

#### **EDHD Education and Human Development**

EDHD 100. Service Learning (1). Service learning links community service with academic study. Students learn through active participation in thoughtfully organized service. May be repeated. Graded S/U.

EDHD 200. Service Learning (1). Service learning links community service with academic study. Students learn through active participation in thoughtfully organized service. May be repeated. Graded S/U.

EDHD 201. Introduction to Education (2). Fall, Spring, Summer. Introduction to educational foundation topics and contemporary issues for prospective teachers. Explore and analyze the teaching profession through literature and film in a weekly seminar and a service learning experience. Required as an entry-year experience for all teacher-education candidates. C/F hrs.: 30. May be repeated.

EDHD 300. Service Learning (1). Service learning links community service with academic study. Students learn through active participation in thoughtfully organized service. May be repeated. Graded S/U.

EDHD 400. Service Learning (1). Service learning links community service with academic study. Students learn through active participation in thoughtfully organized service. May be repeated. Graded S/U.

### **EDIS Educational Intervention Services**

EDIS 310. Second Year Field Experience (3). On demand. Introduction to breadth and depth of the field of special education, professional and consumer organizations, professional opportunities. Spend extended time with persons with special needs in different settings. Prerequisites: EDHD 201; C/F hrs. 60. Graded S/U.

EDIS 324. American Sign Language I (3). Basic vocabulary and grammatical structure of the visual language system used by deaf persons in North America. Implications of deafness for language and communication, psycholinguistic studies of Sign. Graded.

EDIS 325. American Sign Language II (3). Students will expand conversational range including situations such as giving directions, making requests, establishing connections with Deaf persons, handling interruptions during conversations. Students will learn historical aspects of Deaf education and Deaf organizations. Prerequisite: EDIS 324 or consent of instructor. Graded.

EDIS 395. Workshop on Current Topics (1-3). Intensive educational experience on selected topics related to skill development, content update, materials development. Typically, an all-day concentrated time format used. Requirements usually met within format. May be repeated on approval of adviser. Graded.

EDIS 410. Third Year Field Experience (3). Fall, Spring. Maintaining healthy environments and using technology and classroom resources. Experience in special education classrooms. Prerequisites: EDIS 431 and EDFI 302 or EDFI 303. C/F hrs.: 100. S/U.

EDIS 411. Phonics Instruction for Students with Special Needs (3). Fall, Spring. Systematic phonics instruction that promotes generalization to reading and writing, methods and materials to teach phonics as part of a comprehensive language arts program for students with special needs. Prerequisites: EDIS 431 and EDFI 302 or EDFI 303. Graded.

EDIS 412. Content Literacy for Students with Special Needs (3). Fall, Spring. Teaching reading across curriculum for students with special needs at all grades. Selecting instructional materials, methods, intervention and study strategies, develop study guides, and modify testing procedures. Prerequisites: EDIS 431 and EDFI 302 or EDFI 303. Graded.

EDIS 421. Assistive Technology in Special Education (3). On demand. Technology across special education spectrum. Content ranges from use of computers and

various input and output devices to simple switches used to turn appliances on to increase the quality of life of persons with special needs. Prerequisites: EDIS 431 or EDIS 435. C/F hrs.: 30. Graded.

EDIS 422. Classroom Management (3). On demand. General classroom management, establishing rules, preventing behavior problems, maintaining positive environment, teaching social skills, conflict resolution, using classroom paraprofessionals, scheduling, and classroom design. Prerequisites: EDIS 431 or EDIS 435. C/F hrs.: 10. Graded.

EDIS 423. Applied Behavior Analysis (3). On demand. Intervening in a behavior problem and ethical concerns, crisis intervention, creating and maintaining records, designing a behavior intervention program, identifying realistic expectations, and using assessment instruments. Prerequisites: EDIS 422. C/F hrs.: 10. Graded.

EDIS 424. Consultation and Collaboration with Colleagues and Families (3). On demand. Skills needed for consultation and collaboration with both professionals and families including ethical practices, available services, and developing appropriate reports. Prerequisites: EDIS 431 or EDIS 435. C/F hrs.: 10. Graded.

EDIS 425. Transitions and Students with Special Needs (3). On demand. Transitions from self-contained classes to general education classrooms, from one level of school to another, and from school to work. Issues, resources, techniques to make successful transitions. Prerequisites: EDIS 310, EDIS 431, EDIS 422. C/F hrs. 10. Graded.

EDIS 429. Assessment of Young Children (3). Fall, Spring, Summer. Concepts and principles of measurement and instruments used in assessing young children and young children with special needs; integration of measurement and instruction. Formal, informal methods of diagnosis, assessment, and monitoring progress in the areas of development. Prerequisites: EDFI 302 or EDFI 303. Graded.

EDIS 431. Teaching Students with Special Needs (3). On demand. The nature and characteristics of students with special needs, legal issues in special education, issues in definitions and identification of disabilities and ways to adapt learning environments, including methods, materials, classroom arrangement, etc. to meet the needs of all students. Prerequisites: EDHD 201. C/F hrs.: 15. Graded.

EDIS 432. Nature and Characteristics of Learners with Special Needs (3). On demand. The nature and characteristics of students with special needs; models, theories, and philosophies on which special education practices have been based; and legal issues in definitions and identification of disabilities and regulations regarding assessment and IEPs. Prerequisites: EDIS 431. Graded.

EDIS 435. Young Children with Disabilities: Risk Factors and Disabilities (3). Fall, Spring. Etiology, characteristics, classifications, and implications of common disabilities in young children. Also includes multi-factored evaluation, eligibility for special education services, service delivery models, and individualized education/intervention plans. Prerequisite: HDFS 221.

EDIS 436. Introduction to Education of Students who are Deaf/Hard of Hearing (3). Spring. History, philosophy, psychology and education of students who are deaf/hard of hearing. Definitions of types and classifications of hearing impairments. Cognitive, social, and linguistic development of individuals with hearing loss and implications for education. Prerequisite: EDIS 431 or EDIS 435.

EDIS 440. Fourth Year Seminar/Field Experience: Application (3). Fall, Spring. Putting into practice the methods taught in previous and concurrent methods

classes. Field based activities will be integrated with the methods courses. Prerequisites: EDIS 431, EDIS 410, 411 (or EDTL 300), 412, concurrent enrollment in EDIS 441 and EDIS 442. C/F hrs.: 125. S/U.

EDIS 441. Reading and Writing Instruction for Students with Special Needs (3). Fall, Spring. Methods, materials for teaching reading/writing to students with special needs. Prerequisites: Senior status, must be taken as part of Methods Block for Mild-Moderate or Moderate-Intensive Intervention Specialist, GPA of 2.75 or better or department permission. Graded.

EDIS 442. Reading and Writing Diagnosis and Assessment for Students with Special Needs (3). Fall, Spring. Formal, informal methods of diagnosis, assessment, and monitoring progress in the areas of reading and writing. Prerequisites: Senior status, taken as part of Methods Block for Mild-Moderate or Moderate-Intensive Intervention Specialist, GPA of 2.75 or better or department permission. Graded.

EDIS 443. Math Instruction and Assessment for Students with Special Needs (3). Fall, Spring. Methods and materials for math instruction as well as both formal and informal assessment. Prerequisites: Senior status, taken as part of Methods Block for Mild-Moderate or Moderate-Intensive Intervention Specialist, GPA of 2.75 or better or department permission. Graded.

EDIS 444. Adapting Curriculum and Instruction for Students with Special Needs (3). Fall, Spring. Ways to adapt instruction and materials for students with special needs. Prerequisites: Senior status, taken as part of the Methods Block for Mild-Moderate Intervention Specialists; GPA of 2.75 or better or department permission. Graded.

EDIS 446. Physical and Medical Management (3). Spring. Physical and medical management of students with moderate-intensive needs. Toileting, wheelchair care and management, positioning, medication issues. Prerequisites: Moderate-Intensive Intervention Specialist, GPA of 2.75 or better or department permission. Graded.

EDIS 447. Adapting Curriculum for Students with Moderate to Intensive Special Needs (3). Fall. Adapting the curriculum to meet the requirements of students with moderate-intensive needs (life skills, job skills, leisure pursuits). Prerequisites: Moderate-Intensive Intervention Specialists; GPA 2.75. Graded.

EDIS 448. Implementing Inclusive Environments (3). Fall, Spring. Knowledge and skills involved in arranging the physical, social, and instructional environments to enhance the development and learning of young children with disabilities (birth through age eight) in inclusive early childhood programs.

EDIS 459. Introduction to Manually Coded English (3). Spring. Introduction to manual English, sign systems and processes. Development of basic sign skills for classroom use. Extra fee.

EDIS 460. Instruction through Manually Coded English: Classroom Techniques and Applications (3). Fall. Investigation of manual English in classroom use, implementation procedures and implications for older students, subject matter instruction and use by parents. Development of advanced skills in manually coded English. Prerequisite: EDIS 459 or consent of instructor.

EDIS 464. Curriculum Design for Students who are Deaf/Hard of Hearing (3). Fall. Methods for adapting instructional procedures, materials and evaluation to meet the unique visual and communication requirements of students who are D/HH; lesson planning, integrated curriculum design, and IEPs. In conjunction with a practicum experience in a public school classroom. In conjunction with EDIS 470. Prerequisite: EDIS 436.

EDIS 465. Language and Literacy Instruction of Students who are Deaf and Hard of Hearing (4). Fall. Comparative language development of students who are d/hh with stages and attainments of normally-hearing children. Methods of language instruction of students who are d/hh and integration of language throughout the curriculum. Special focus on literacy: needs and strategies in reading/writing instruction. In conjunction with EDIS 470. Prerequisites: CDIS 225, EDIS 436.

EDIS 466. Speech Production, Instruction, and Speech reading for Students who are Deaf and Hard of Hearing (3). Fall. Basic anatomy and physiology of the speech mechanism, disorder terminology, phonetic transcription techniques. Methods for assessing stimulation and remediation speech problems evidenced with d/hh. Strategies for collaborating with and extending the work of SLP in the classroom. In conjunction with a practicum in school speech and D/HH classrooms. Prerequisite: EDSE 436.

EDIS 467. Educational Audiology and Aural Rehabilitation for Students who are Deaf and Hard of Hearing (4). Fall. Basic anatomy and physiology of the hearing mechanism. Types, causes, etc. of hearing loss. Basic audiometric principles, interpretation of audiograms. Design, operation of various amplification equipment: classroom implication for use, care. Strategies for stimulation, use of residual hearing and integrating auditory skills with speech language instruction. Prerequisite. EDIS 436.

EDIS 470. Practicum with Students who are Deaf and Hard of Hearing (3). Fall. Observation of educational programs for students who are deaf and hard of hearing. Experience in tutoring, utilizing amplification and instructional media and developing/interpreting IEPs. Must be taken concurrently with EDIS 464, EDIS 465, EDIS 466, EDIS 467. Prerequisites: EDIS 431, EDIS 436.

EDIS 482. Practicum in Residential Settings (3). On demand. The course will prepare students to plan, develop, and maintain residential options for persons with developmental handicaps. The practicum hours will be spent in a residential setting. Prerequisite: EDIS 310, EDIS 423, Junior Standing, C/F hrs. 100. S/U.

EDIS 483. Internship in Developmental Disabilities and Habilitation (8-16). Supervised full-day experience within a setting related to the student's academic specialization. Settings must be approved by the instructor. Prerequisite: EDIS 482, senior standing, overall GPA of 2.5 or departmental permission. C/F hrs.: 320-640. Graded S/U.

EDIS 485. Job Coaching (3). Comprehensive review of job coaching and related services for individuals with disabilities. Identification of roles, functions and responsibilities of referral sources, job coaching practitioners, employers and clients. Practical applications and theoretical concepts will be addressed.

EDIS 490. Problems in Education (1-3). For advanced students wanting to conduct intensive study of selected problems in education. May be repeated to six hours; undergraduate credit only. Prerequisite: Consent of department.

EDIS 492. Teaching Internship for Intervention Specialists (1-16). The internship will feature 16 weeks in one or two classes for students with special needs. Interns will be expected to successfully put into practice the knowledge and skills they have been learning and practicing in previous classes and field experiences with the guidance of a mentor teacher and a university supervisor. Prerequisite: EDIS 440, EDIS 441, EDIS 442. C/F hrs: 300. Extra fee.

#### **EDTL Educational Teaching & Learning**

EDTL 202. Contemporary Perspectives on Teaching in the Middle Grades (2). This course will provide the students with their first specific introduction to

middle childhood philosophy with a focus on urban education. This two-credit course will include a field experience in classrooms utilizing middle school philosophy. (2) Prerequisite: EDHD 201. C/F Hrs.: 20. MCE. Extra fee.

EDTL 203. Contemporary Perspectives on Teaching in the Early Grades (3). Fall and spring. An introduction to early childhood education, K-3, emphasizing the philosophy and approaches needed for teaching in a complex, diverse society. Field-based course with a focus on diverse schools. Prerequisite: EDHD 201 with C or better grade. C/F Hrs. 30. ECS, Pre-Early Childhood Studies majors or instructor permission.

EDTL 242. Literacy Inquiry for the Middle Grade Teacher (3). Fall, Spring. A course on understanding literacy and implementing reading, writing, and comprehension strategies when teaching. Also examines historical, social, cultural, cognitive, linguistic, and curricular perspectives on literacy instruction. Prerequisite: EDHD 201.

EDTL 300. Phonics, Word Recognition, and Language Skills (3). Fall, Spring. Phonics and a systematic approach to its teaching, assessment, and intervention for young children. From a base of language development, phonemic awareness, phonics, word recognition, and word study will be addressed with connections to spelling and vocabulary acquisition. Co-requisite: EDTL 321. Prerequisite: EDFI 302 or EDFI 303.

EDTL 301. Phonics, Fluency, and Word Study (3). Fall, Spring. Phonics and a systematic approach to its teaching, assessment, and intervention with middle grade learners. From a base of language development, phonics structural analysis, and other word recognition strategies will be examined as tools for reading fluency. Word study and spelling across the curriculum will be addressed. Prerequisite: EDFI 302 or EDFI 303.

EDTL 302. Computer Utilization in Early and Middle Childhood Classrooms (3). Fall, Spring, Summer. Impact of the computer on educational methods and applications in early and middle childhood classrooms. Evaluation of software. Integration of computer and associated technologies into content areas. Prerequisites: EDFI 302 or EDFI 303 and junior standing. Extra fee.

EDTL 320. Teaching Young Children II: Kindergarten-Grade 3 (3). Fall, Spring. Planning, teaching, management, and professionalism for early childhood teachers. Developmentally appropriate practices, integration, and collaboration. Practicum. Must obtain C or better prior to EDTL 491. Prerequisite: admission to early childhood program.

EDTL 321. Emergent and Beginning Reading (3). Fall, Spring. Literacy development for the early years. Theoretical curricular perspectives. Materials, instructional approaches, and assessment that are developmentally appropriate. Must obtain C or better prior to EDTL teaching internship. Prerequisites: EDTL 300 and admission to early childhood program.

EDTL 322. Literacy Across the Early Childhood Curriculum (3). Fall, Spring. Developing oral and written language abilities in young children through age-appropriate, integrated curriculum. Approaches, teaching strategies, and resources for language learning through play, drama, reading, writing, speaking, and listening. Prerequisites: EDTL 310; EDTL 311 or EDTL 301; admitted to Early Childhood Program. Corequisite: EDTL 320.

EDTL 323. Early Childhood Mathematics Methods (3). Fall, Spring. Teaching contemporary mathematics in prekindergarten-grade 3. Objectives, curriculum, materials for instruction, methods of teaching, and assessment. Must obtain

minimum grade of C prior to EDTL 491. Prerequisite: admission to early childhood program. C/F hrs.: 30.

EDTL 324. Science Methods for the Early Childhood Teacher (3). Fall, Spring. Teaching of science in grades PreK-3. Developmentally appropriate instruction in science, including early childhood science curriculum, materials, teaming, adapting curriculum for diverse populations, and multiple methods evaluation. Must obtain C or better prior to EDTL 491. Prerequisite: admission the early childhood program.

EDTL 325. Social Studies for the Early Childhood Teacher (3). Fall, Spring. Objectives, content learning experiences, instructional resources, teaming, evaluation of teaching, learning in the classroom. Must obtain minimum grade of C prior to EDTL 491. Prerequisite: admission to early childhood program.

EDTL 326. Literacy Assessment in the Early Childhood Education Classroom (3). An investigation of the role of classroom assessment in instructional decision-making and student learning. This course provides an in-depth study of various formal and informal literacy assessment tools that are appropriate to use in early childhood classrooms. Must obtain a minimum grade of C prior to EDTL 491. Prerequisites: EDTL 310; EDTL 311 or EDTL 301; admitted to Early Childhood Program. Corequisite: EDTL 320.

EDTL 340. Teaching for the Middle Grades (3). Fall, Spring. Planning, teaching, management, and professionalism for middle grade teachers. Methods Block Practicum. Must obtain a minimum grade of C prior to EDTL 492. Prerequisite: Admission to Middle Childhood Program.

EDTL 341. Content Literacy for Middle Childhood Educators (3). Fall, Spring. Teaching and assessing reading across the curriculum, Grades 4-9. Evaluating materials. Instructional and intervention strategies. Literature, writing, and comprehension. Reading to integrate instruction. Must obtain a minimum grade of C prior to EDTL 492. Prerequisite: EDFI 303 or EDFI 302.

EDTL 343. Applied Literacy Assessment for the Middle Childhood Classroom (3). Fall, Spring. Applying literacy techniques to middle childhood classrooms and educational settings. From theoretical perspectives to materials, techniques, and tools. Using assessments to plan instruction. Prerequisites: EDTL 300 or EDTL 301 with a C grade or better; admission to Middle Childhood Education program.

EDTL 345. Mathematics Instruction for the Middle Childhood Educator (3). Fall, Spring, Summer. Teaching contemporary mathematics in grades 4-9. Objectives, curriculum, materials for instruction, methods of teaching, and assessment. Must obtain minimum grade of C prior to EDTL 492. Prerequisite: admission to middle childhood program.

EDTL 346. Investigations in Mathematics for the Middle Childhood Teacher (3). Fall, Spring. Research in mathematics education for the middle grades. Curricular and instructional trends, national and state models, team teaching, use of technology. Must obtain minimum grade of C prior to EDTL 492. Prerequisites: EDTL 345 and admission to middle childhood program. C/F hrs.: 30.

EDTL 347. Literacy for Middle Childhood Educators (3). Fall, Spring. In-depth study of literacy for reading-language arts teachers in middle grades, including curriculum, materials, methodologies, assessment tools, and interventions. Methods Block Practicum. Must obtain a minimum grade of C prior to EDTL 492. Prerequisite: admission to middle childhood program.

EDTL 348. Science Methods for the Middle Childhood Teacher (3). Fall, Spring. Teaching science in grades 4-9. Objectives, curriculum, materials, evaluation, and instruction, including teaming and adaptations for diverse learners. Methods Block Practicum. Must obtain a minimum grade of C prior to EDTL 492. Prerequisite: admission to middle childhood program.

EDTL 349. Social Studies for the Middle Childhood Teacher (3). Fall, Spring. Objectives, content learning experiences, instructional resources, teaming, evaluation of teaching, learning in the classroom. Methods Block Practicum. Must obtain a minimum grade of C prior to EDTL 492. Prerequisite: admission to middle childhood program.

EDTL 367. Computer Utilization in the Classroom-Secondary (3). Fall, Spring. Impact of the computer on educational methods and applications in the classroom. Evaluation of software. Integration of the computer and associated technologies into the content areas. Prerequisite: attainment of 60 semester hours; accumulative GPA of at least 2.8; grade of C or better in EDFI 302 or EDFI 303. Extra fee.

EDTL 370. General Teaching Methods in Secondary Schools (3). Processes and issues that form the basis of instruction in all content areas; development of strategies and teacher behaviors associated with effective instruction. Prerequisites: attainment of 60 semester hours; accumulative GPA of at least 2.8; grade of C or better in IPC 102, ENG 112, EDHD 201, EDFI 302 or EDFI 303. Extra fee.

EDTL 372. Speech in Secondary Schools (3). Principles, objectives, instructional and resource materials, and methods for teaching of speech in secondary schools. Prerequisites: EDFI 302, EDTL 370, and senior standing. Grade of C or better required. C/F hrs.: 40.

EDTL 373. Teaching Foreign Language in the Schools I (3). Fall, Spring. Principles of second language learning; theory and practice of K-12 curriculum, development of fundamental skills and abilities in teaching listening, speaking, reading, writing in foreign language; techniques of instruction planning; concepts of teaching culture. Prerequisites: EDHD 201, EDFI 302 and junior standing. C/F hrs.: 30.

EDTL 378. Journalism Methods for High School Teachers (3). Principles, objectives, curriculum, materials, methods of teaching mass media in secondary schools. Prerequisites: EDTL 370, EDFI 302 and senior standing. Grade of C or better required. C/F hrs.: 40.

EDTL 395. Workshop on Current Topics (1-9). Intensive education experience on selected topics related to skill development, content update or materials development. Typically, an all-day or similar concentrated time format. Requirements usually completed within time format. May enroll up to 9 hours. May be repeated with different titles. Requires consent of program coordinator. S/U only.

EDTL 418. Effective Teaching/Classroom Management (3). Fall, Spring. Effective teaching principles dealing with techniques, organization, planning and management combined with strategies used to facilitate learning and reduce behavior problems. Prerequisite: Admission into the Adolescent/Young Adult Program.

EDTL 420. Developmental Reading in the Content Areas (3). Fall, Spring, Summer. Orients the teacher to the developmental reading process as it applies to the various subject matter areas. Prerequisite: admission into the adolescent/young

adult education program or consent of instructor. No credit for EDTL 420 if credit has already been earned for EDTL 421 or EDTL 341.

EDTL 421. Content Area Literacy (3). Fall, Spring. Orients preservice teachers in various content areas to the reading and writing process as applied across the curriculum. Prerequisites: Junior Standing and EDFI 302, EDFI 303. No credit for EDTL 421 if credit has already been earned for EDTL 420 or EDTL 341.

EDTL 429. Teaching Foreign Language Skills in the Schools II (3). Spring. Advanced-level skills and abilities in teaching listening, speaking, reading and writing in foreign languages as applied to the K-12 curriculum, classroom management, testing and evaluation, individualized instruction and culture. If taken for graduate credit, a research paper is required. Prerequisites: EDTL 373 and EDHD 201. C/F hrs.: 30.

EDTL 471. Language Arts in Secondary Schools (3). Fall, Spring. Philosophies of, experiences in and methods of teaching English in secondary schools. Prerequisites: admission into the adolescent/young adult program. ENG 380 and ENG 381. Grade of C or better required. C/F hours: 40. Extra fee.

EDTL 474. Mathematics in Secondary Schools (3). Fall, Spring. Principles, objectives, curriculum, materials and methods of teaching mathematics in secondary schools. Prerequisite: admission into the adolescent/young adult education program. Grade of C or better required. C/F hrs.: 40. Extra fee.

EDTL 475. Science in Secondary Schools (3). Fall, Spring. Principles, objectives, curriculum, instructional and resource materials, and methods of teaching science in secondary schools. Prerequisite: admission into the adolescent/young adult education program. Grade of C or better required. C/F hrs.: 40. Extra fee.

EDTL 476. Social Studies in Secondary Schools (3). Fall, Spring. Principles, objectives, curriculum, instructional and resource materials, and methods of teaching social studies in secondary schools. Prerequisite: admission into the adolescent/young adult education program. Grade of C or better required. C/F hrs.: 40. Extra fee.

EDTL 490. Problems in Education (1-3). On Demand. For student wanting to conduct intensive study of selected programs in education. May repeat up to nine hours under different titles. Undergraduate credit only. Prerequisite: Consent of Department. C/F hrs.: 20.

EDTL 491. Teaching Internship, Kindergarten-Grade 3 (1-16). Classroom teaching in early grades under supervision on full-time basis. Conferences and seminars to support professional growth. College/program eligibility requirements must be met. C/F hrs.: 30 hrs./wk. May be repeated. Graded S/U. Extra fee.

EDTL 492. Teaching Internship, Grades 4-9 (1-15). Classroom teaching in middle grades under supervision on full-time basis. Conferences and seminars to support professional growth. College/program eligibility requirements must be met. C/F hrs.: 30 hrs./wk. May be repeated. Graded S/U. Extra fee.

EDTL 497. Student Teaching (1-16). Fall, Spring. Classroom teaching at the secondary level under supervision on full-day basis. Conferences and seminars supplement program. College/program eligibility requirements must be met. C/F hrs.: 30 hrs/wk. May be repeated up to 15 hours. Graded S/U. Extra fee.

#### **ENG English**

ENG 099. Creative Writing Common Time (). Fall, Spring. Restricted to, and required of, all creative writing majors and minors every semester. Successful

completion of course requires attendance at scheduled one-hour common time each week. No prerequisites. Graded S/U.

ENG 100. ESL Academic Composition I (3). Fall or Spring. Develops intermediate skills in reading and writing academic American English. Emphasis is on sentence-level and paragraph-level writing. Placement is on the basis of proficiency examination. No more than three hours from English 100 or English 101 may be applied toward graduation.

ENG 101. ESL Academic Composition II (3). Fall or Spring. Develops high-intermediate skills in reading and writing academic American English. Emphasis is on essay-level writing. Placement is on the basis of proficiency examination or completion of ENG 100. No more than three hours from English 100 or English 101 may be applied toward graduation.

ENG 103. ESL Academic Oral/Aural Communication Skills I (3). Fall or Spring. For students with low intermediate oral/aural skills. Develops pronunciation and prosody while introducing participation in classroom discussions, taking notes in class, and giving in-class presentations. Introduces culture-based expectations of social and academic interaction. Prerequisite: Placement on the basis of proficiency examination. Graded S/U.

ENG 104. ESL Academic Oral/Aural Communication Skills II (3). Fall or Spring. For students with high intermediate oral/aural skills. Develops fluency while preparing students to participate in classroom discussions, take notes in class, and give in-class presentations. Heightens student awareness of culture-based expectations of social and academic interaction. Prerequisite: Placement on the basis of proficiency examination or completion of ENG 103. Graded S/U.

ENG 110. Developmental Writing (5). Fall, Spring. Development of skills in sentence structure, edited American English usage, mechanics, paragraph construction; basic expository writing; emphasis on organizing and developing coherent essays of at least 800 words for college-educated audience. Placement through departmental pretesting. Student must complete course and departmental portfolio assessment successfully to receive S and to be eligible to enroll in ENG 112; students who receive No Record must enroll in ENG 111. No more than six hours from ENG 110, ENG 111 and ENG 112 may be applied toward graduation. Graded S/No Record. Extra fee.

ENG 110S. Developmental Writing (3). Summer. Development of skills in sentence structure, edited American English usage, mechanics, paragraph and short essay construction. Placement through departmental pretesting. Students must complete course and departmental portfolio assessment successfully to receive S and to be eligible to enroll in ENG 111; students who receive No Record must enroll in ENG 110. No more than six hours from ENG 110S, ENG 110, ENG 111 and ENG 112 may be applied toward graduation. Graded S/No Record.

ENG 111. Introductory Writing (3). Fall, Spring, Summer. Basic expository writing; emphasis on organizing and developing coherent essays of at least 800 words for college-educated audience. Placement through departmental pretesting or No Record of ENG 110. Students must complete course and departmental portfolio assessment successfully to receive S. No more than 6 hours from ENG 110, ENG 111 and ENG 112 may be applied toward graduation. Graded S/No Record. Extra fee. Approved for web delivery.

ENG 112. Varieties of Writing (3). Fall, Spring, Summer. Expository writing including research paper, emphasis on analytical writing based on critical reading. Placement through departmental pretesting or successful completion of ENG 110 or ENG 111. Student must complete course and departmental portfolio assessment successfully to receive a passing grade. Graded A, B, C/No Record.

Applicable to the writing proficiency general education requirement. Extra fee. Approved for web delivery.

ENG 150. Response to Literature (3). Fall, Spring. A general education course emphasizing discussion of humanistic themes based on student responses to readings in fiction, drama, poetry and nonfiction. Not accepted toward English major or minor. Prerequisite: enrollment in or completion of ENG 111. Applicable to the humanities and arts general education requirement.

ENG 200. Introduction to Literature (2-3). Fall, Spring. Various topics: Short Story, Literature and Film, Science Fiction, Fantasy, Women in Literature, Black Literature. A general education course with emphasis on humanistic themes and basic literary concepts. Some topics for two hours, most for three. Can be repeated once if topics differ. Not accepted for English major or minor. Prerequisite: enrollment in or completion of ENG 112. Applicable to the humanities and arts general education requirement. Approved for web delivery.

ENG 201. Introduction to Literary Genres (3). Fall. General introduction to study of literary genres with attention to various forms of fiction, nonfiction, drama, poetry, and to essential literary terminology. Extensive expository writing. Prerequisite for ENG 202.

ENG 202. Introduction to Literary Theory and Criticism (3). Spring. General introduction to study of literary theory and criticism with attention to various schools of 20th century criticism, critical applications, and critical terminology. Extensive critical writing. Prerequisite: ENG 201.

ENG 205. Craft of Poetry (3). Fall. The way poetry works, analysis of poetic form, theory and technique in traditional and contemporary works, emphasis on poetry writing exercises and revision. Required for majors in BFA creative writing program. Prerequisite: ENG 112.

ENG 206. Craft of Fiction (3). Spring. The way fiction works, analysis of fictional form, theory and technique in traditional and contemporary works, emphasis on story writing exercises and fiction terminology. Required for majors in BFA creative writing program. Prerequisite: ENG 112.

ENG 207. Intermediate Writing (3). Fall, Spring. Work on developing mastery of the rhetorical principles of planning, executing and revising prose. Emphasis on strengthening analytical writing, both expository and argumentative; valuable for writing on the job. Prerequisite: ENG 112. Extra fee. Approved for web delivery.

ENG 208. Imaginative Writing (3). Fall, Spring. Explorations of the creative process through the writing of poetry and fiction. Emphasis is on the means whereby private fantasy is transformed into artistic expression. Open to all students. Extra fee.

ENG 209. Creative Writing Workshop (3). Fall, Spring. Principles of poetic composition and fiction writing; analysis of contemporary models and group discussion of student's work. May be repeated once. Extra fee.

ENG 211. African-American Literature (3). Spring. African-American literature from the mid-eighteenth century to the present in its historical, political, and cultural context. Germane critical approaches to both literary modes and vernacular tradition. Applicable to the cultural diversity in the United States general education requirement.

ENG 261. World Literature from Ancient Times to 1700 (3). Fall, Spring. Works in English and in translation of various world literatures from Ancient times to

1700 including a balanced selection of texts from European and non-European cultures such as Greek, Celtic, Roman, Chinese, Indian, African, Japanese, Arabic, etc. Prerequisites: ENG 112 and any ENG 200 and above literature course. Applicable to the humanities and arts and international perspective general education requirements. Approved for web delivery.

ENG 262. World Literature from 1700 to Present (3). Fall, Spring. Works in English and in translation of various world literatures from 1700 to the present including a balanced selection of texts from European and non-European cultures such as French, Russian, Spanish, Latin American, Chinese, Indian, African, Caribbean, Japanese, Arabic, etc. Prerequisites: ENG 112 and any ENG 200 and above literature course. Applicable to the humanities and arts and international perspective general education requirements. Approved for web delivery.

ENG 264. British Literature Survey to 1700 (3). Fall. Survey of British prose, poetry, and drama from Anglo-Saxon origins through the Restoration; emphasis on literary traditions and historical contexts. Prerequisites: ENG 112 and enrollment in or completion of ENG 201.

ENG 265. British Literature Survey, 1700-1945 (3). Spring. Survey of British prose, poetry and drama from 18th century through Second World War; emphasis on literary traditions and historical contexts. Prerequisites: ENG 112 and ENG 201.

ENG 267. American Literature Survey (3). Fall, Spring. This non-major course examines American literature from the exploration era to the Second World War. Emphasis on literary movements, genres, and major themes. Prerequisite: ENG 112. Applicable to the humanities and arts general education requirement.

ENG 268. American Literature to 1945 (3). Spring. American literature from the exploration era to the Second World War. May emphasize historical development and/or major themes. Prerequisite: ENG 201. Corequisite: ENG 202.

ENG 269. Canadian Fiction (3). Spring, Summer. Short stories and novels by leading Canadian authors from English-speaking areas, emphasis on recent writers. Titles chosen to represent diversity of expression from various regions, with some attention to women's concerns as well as Native American, Eskimo, and ethnic views. Prerequisite: Any ENG literature course or ENG 112. Applicable to the humanities and arts and international perspective general education requirements. Approved for web delivery.

ENG 285. Writing About Films (3). Fall, Spring. Writing-intensive course treating film analysis, film reviews, film theory, and film adaptations. Prerequisite: ENG 112. Extra fee.

ENG 290. Language Study (3). Spring. Aspects of form and style in language: structure, usage, semantics; language change and cultural convention; social and regional dialects. Prerequisite: sophomore standing. Not applicable for state certification requirements. Not a substitute for ENG 380 requirement for English education. Applicable to the humanities and arts general education requirement.

ENG 300. Interdisciplinary Studies in Literature (3). Fall, Spring. Interdisciplinary or themed topics not offered under the department's other listings. Recent topics have included Imperialism, Women's Humor, Literature of Trauma, British Situation Comedy. Prerequisites: ENG 201 and ENG 202 or permission of instructor. May be repeated once if topics differ.

ENG 301. Shakespeare (3). Fall, Spring. Representative comedies, histories, tragedies romances and lyric poetry. Designed for student with no previous Shakespeare courses. Prerequisites: ENG 201 and ENG 264. Approved for web delivery.

ENG 306. Bible (3). Fall. English Bible as literary classic; its development and influence on literary culture. Prerequisites: any ENG literature and ENG 112.

ENG 310. Multiethnic American Literature (3). Alternates with ENG 311 and ENG 314 in Fall, Spring, Summer. Modern and contemporary literatures by visibly ethnic American writers. Themes, literary genres, and germane critical approaches in a focus on intersections between cultures and texts. Prerequisites: ENG 202 or other course treating theory and ethnicity by consent of instructor.

ENG 311. Gay and Lesbian Literature and Criticism (3). Fall, Spring. Major issues in contemporary gay and lesbian literary criticism. Discussion of literature and critical writing that addresses gay and lesbian sexuality, with attention to feminist theory, cultural studies, psychoanalytic criticism, race, and class. Prerequisites: ENG 201 and ENG 202.

ENG 312. Poetry Workshop (3). Fall, Spring. Practical application of students' knowledge of how poems are put together. Class discussion and analysis of original and published poetry, and poetry exercises. Required for creative writing major. Prerequisites: ENG 205 and ENG 206 and a B or better in ENG 209 or permission of BFA adviser. May be repeated once. Extra fee.

ENG 313. Fiction Workshop (3). Fall, Spring. Practical application of students' knowledge of how stories are put together. Class discussion and analysis of original and published stories, and fiction exercises. Required for creative writing major. Prerequisites: ENG 205 and ENG 206 and a B or better in ENG 209 or permission of BFA adviser. May be repeated once. Extra fee.

ENG 314. Postcolonial Literature (3). Spring. Introduction to writers from formerly colonized areas of the world, including Africa, Asia, and the Caribbean, among others. Emphasis on themes and issues related to imperialism, postcolonial identity, nationalism, and decolonization, with attention to intersections of race, gender, and sexuality. Prerequisites: ENG 201 and ENG 202.

ENG 320. Modern Poetry (3). Fall. English and American poetry and European poetry in translation from 1900 to 1945; writers and works significantly influencing development of poetic forms. Required for creative writing major. Prerequisites: any ENG literature course and ENG 112.

ENG 323. Modern Fiction (3). Fall. Novelistic fiction from English, European (in translation), and American writers of the Modern period such as Flaubert, Joyce, Conrad, Woolf, Kafka, Mann, Faulkner. Focus on development of forms of fiction, styles, and narrative theories, and on cultural, literary, and political contexts of individual works. Prerequisites: any ENG literature course and ENG 112.

ENG 325. Modern Drama (3). Fall. Dramatic works by British, European (in translation), and American writers of the Modern period such as Shaw, Ibsen, Chekhov, O'Casey, Anouilh, Giradoux, Brecht, O'Neill, with a focus on dramatic movements and theatrical innovations as well as the cultural, aesthetic, literary, and political contexts of individual works. Prerequisites: any ENG literature course and ENG 112.

ENG 330. Contemporary Poetry (3). Spring. Cross section of English and American poetry and European poetry in translation, mostly written since 1945; writers and works representing major trends in development of poetry. Required for creative writing major. Prerequisites: any ENG literature course and ENG 112.

ENG 333. Contemporary Fiction (3). Spring. Fiction by British, European (in translation), and American writers of the contemporary period (since 1945) such as Amis, Pynchon, Duras, Rushdie, Selvon, Naipul, Bradbury, Marquez. Focus on development of forms of fiction, styles, and narrative theories, and on cultural, literary, and political contexts of individual works. Prerequisites: any ENG literature course and ENG 112.

ENG 335. Contemporary Drama (3). Spring. Dramatic works by British, European (in translation), and American writers of the contemporary period (since 1945) such as Arden, Friel, Stoppard, Devere Smith, Shange, Valdez. Focus on dramatic movements and theatrical innovations, as well as the cultural, aesthetic, literary, and political contexts of individual works. Prerequisites: any ENG literature course and ENG 112.

ENG 342. Children's Literature (3). Fall, Spring. Reading and evaluation of books for children from nursery school through junior high school; novels, folklore, informational literature, poetry, and bibliographical sources. Prerequisites: any University general education arts and humanities course and ENG 112.

ENG 343. Literature for Adolescents (3). Fall, Spring. Reading and evaluation of books for 7th - 12th grade; fiction, non-fiction, poetry, and bibliographic sources. Prerequisite: Any University General Education Arts and Humanities course and ENG 112. Approved for web delivery.

ENG 380. Linguistics for English Teachers (3). Fall, Spring. Structure of English through recent linguistic theories related to topics of interest to educators (dialects, register, style, etc.). Attention to syntax and morphology as well as to linguistics systems. Prerequisite: sophomore standing.

ENG 381. Grammar and Writing (3). Fall, Spring. Application of grammatical models (traditional, structural and transformational) to the teaching of writing. Prerequisite: ENG 380. Approved for web delivery.

ENG 385. Studies in Literature-Film (3). On demand. Problems in film's relationship to literature; definitions and theory; specific films and literary works. May focus on author, genre or historical period. May be repeated once if topics differ. Prerequisites: any ENG literature course and ENG 112. Extra fee.

ENG 388. Introductory Technical Writing (3). Fall, Spring. Application of basic forms of writing for business, industry, and government. Requires writing and revising a number of documents including instructions, definitions, descriptions, and reports. Prerequisite: junior standing. Extra fee. Approved for web delivery.

ENG 389. Professional Editing (3). Fall, Spring. Editing technical, scientific, and other professional documents such as proposals, reports, journal articles, conference proceedings, and books. Includes introduction to managing editorial services. Prerequisites: junior standing or permission of instructor. Extra fee.

ENG 400. Chaucer (3). On demand. The Canterbury Tales, Troilus and Criseyde such dreamvision poems as The Book of the Duchess, and lyrics in Middle English. Prerequisites: ENG 202 and ENG 264.

ENG 401. Special Topics in Shakespeare and Criticism (3). On demand. In-depth analysis of Shakespeare's poetic and dramatic production from specific critical/theoretical perspectives. Prerequisite: ENG 301.

ENG 402. English Medieval Literature (3). On demand. Poetry, prose, and drama including such works as Beowulf, Pearl, The Wakefield Plays, read in Old and Middle English. Prerequisites: ENG 202 and ENG 264.

ENG 403. 16th and 17th Century Non-Dramatic Literature (3). On demand. In-depth analysis of the poetry and prose of early modern England, with special attention to English Petrarchanism, Spenserian epic, metaphysical poetry, the Cavalier tradition, and the controversial political and religious tracts of the period. Prerequisites: ENG 202 and ENG 264.

ENG 406. English Renaissance Drama (3). On demand. Renaissance dramatic forms and traditions exclusive of Shakespeare. May include representative authors (Marlowe, Jonson, Middleton, Webster) or genres (revenge tragedy, city comedy, domestic tragedy). Prerequisites: ENG 202 and ENG 264.

ENG 408. Milton (3). Alternate years. Paradise Lost, Paradise Regained and Samson Agonistes and selected minor poems and prose. Prerequisites: ENG 202 and ENG 264.

ENG 410. Topics in English Restoration Literature and Culture (3). On demand. English prose, poetry, and drama 1660-1710. Representative writers-Wycherley, Behn, Dryden, Congreve, Astell-in their neo-classical, historical, and continental contexts. Prerequisites: ENG 202 and ENG 264.

ENG 412. Poet's Workshop (3). Fall, Spring. Focuses on developing the students' writing process and understanding of contemporary poetry. Creative writing majors taking their second 400-level workshop class must complete a thesis and public reading. Prerequisite: B or better in ENG 312 or instructor permission. May be repeated once. Extra fee.

ENG 413. Fiction Writer's Workshop (3). Fall, Spring. Focuses on developing the students' writing process and understanding of contemporary fiction. Creative writing majors taking their second 400-level workshop class must complete a thesis and public reading. Prerequisite: B or better in ENG 313 or instructor permission. May be repeated once. Extra fee.

ENG 415. Topics in Eighteenth-Century British Literature and Culture (3). Fall. Poetry, fiction, drama, and prose from 1700-1800, including writers such as Defoe, Richardson, Fielding, Pope, Swift, Burney, Heywood, and Lennox. Emphasis on cultural developments (such as neoclassicism, capitalism, colonialism, the rise of the novel) and their effect on changing conceptions of class, family structure, gender, sexuality, and race in 18th-century Britain. Prerequisites: ENG 202 and ENG 265.

ENG 416. The Victorian Novel (3). Spring. Male and female novelists of the Victorian period (1837-1901) including the Brontes, Eliot, Dickens, Elizabeth Gaskell, Wilkie Collins, Hardy, among others. Emphasis on issues such as industrialization, imperialism, social/legal reform, crime and sensationalism, domesticity, and women's changing roles, as well as the intersections of class, race, gender, and sexuality in Victorian Britain. Prerequisites: ENG 202 and ENG 265.

ENG 417. Topics in British Romanticism (3). Spring. Poetry, fiction, and drama by both male and female Romantic writers such as Wollstonecraft, Mary Shelley, Blake, Keats, Coleridge, Byron, Scott, Ann Radcliffe. Emphasis on historical and cultural context of British Romanticism. Topics may include impact of revolution, emergence of the Gothic, the Sublime, the Picturesque, the rise of Orientalism/colonialism. Prerequisites: ENG 202 and ENG 265.

ENG 418. Victorian Poetry and Prose (3). Fall. Prose and poetry of the Victorian period, including such writers as Browning, Tennyson, Arnold, Elizabeth Barrett, Emily Bronte, Christina and Dante Gabriel Rossetti. Prerequisites: ENG 202 and ENG 265.

ENG 419. Topics in Modern British Literature (3). Fall. Works in one or more genres from the modern period by English, Irish, Scottish, and Welsh writers such as Joyce, Yeats, Thomas, Woolf, O'Casey, etc. Topics may include theoretical, aesthetic, historical, cultural, and political issues of the period. Prerequisites: ENG 202 and ENG 265.

ENG 420. Topics in Contemporary British Literature (3). Fall. Works in one or more genres from the 1940s to the present by English, Irish, Scottish, Welsh, and immigrant writers of the British Isles. Topics may include theoretical, aesthetic, historical, cultural, and political issues of the period. Prerequisites: ENG 202 and ENG 265.

ENG 423. Women's Studies in Literature (3). On demand. Women as authors and subjects. Feminist critical approaches to literary works in a range of genres, cultural backgrounds, or historical periods. May be repeated once. Prerequisites: ENG 201 and ENG 202, or permission of instructor.

ENG 424. Topics in Multiethnic American Literature (3). On demand. Literary works from all genres by writers from one ethnic American culture. In-depth study of significant texts placed in culturally specific contexts through the lens of appropriate multicultural theory. May be repeated once. Prerequisite: ENG 310, ENG 311 or ENG 314.

ENG 430. Topics in Early American Literature (3). On demand. Intensive study of an author, group of authors, genre, theme, period, or critical issue. Authors may include: Smith, Bradford, Rowlandson, Knight, Edwards, Franklin, Wheatley, Irving, and Cooper. Native-American myths and French/Spanish exploration narratives may also be treated. Prerequisites: ENG 202 and ENG 268.

ENG 431. Topics in the American Renaissance (3). On demand. Intensive study of an author, group of authors, genre, theme, period, or critical issue. Authors may include: Emerson, Thoreau, Fuller, Whitman, Dickinson, Douglass, Jacobs, Stowe, Poe, Hawthorne, and Melville. Prerequisites: ENG 202 and ENG 268.

ENG 432. Topics in Late Nineteenth-Century American Literature (3). On demand. Intensive study of an author, group of authors, genre, theme, period, or critical issue. Authors may include: Twain, Harper, Howells, Chesnut, Crane, Norris, Alcott, Jewett, Winnemucca, James, and Chopin. Prerequisites: ENG 202 and ENG 268.

ENG 433. Topics in Modern American Literature (3). On demand. Intensive study of an author, group of authors, genre, theme, period, or critical issue. Authors may include: Eliot, Stein, Hurston, Hemingway, Faulkner, Odets, Barnes, Wharton, Stevens, H.D., and Hughes. Prerequisites: ENG 202 and ENG 268.

ENG 434. Topics in Contemporary American Literature (3). On demand. Intensive study of an author, group of authors, genre, theme, period, or critical issue. Prerequisites: ENG 202 and ENG 268.

ENG 442. Studies in Children's Literature (3). Alternate years. Problems in children's literature; history, criticism, trends, individual authors, types. Prerequisite: ENG 342 or permission of instructor.

ENG 456. Topics in Critical Theory (3). On demand. In-depth study of one or more literary/critical theories such as semiotic, psychoanalytic, Marxist, feminist, postcolonial. Prerequisites: ENG 202.

ENG 470. Directed Readings in Language and Literature (1-4). Fall, Spring. For advanced student or small group of students to work independently in specialized subject not covered by existing courses. Prerequisites: junior standing; six hours of English beyond ENG 112; written description of the proposal, prepared by student and signed by proposed instructor, to be submitted to undergraduate curriculum committee in English prior to end of preceding semester.

ENG 480. Studies in English or American Literature (3). On demand. Intensive study of author, literary school, genre or theme. May be repeated once if topics differ. Prerequisites: ENG 201 and ENG 202. Approved for web delivery.

ENG 481. Advanced English Linguistics (3). Alternate years. Intensive study of topic in English linguistics. Topics announced in advance and vary from section to section and semester to semester. May be repeated if topics clearly differ. Prerequisite: ENG 380 or permission of instructor.

ENG 482. History of English Language (3). Alternate years. Changes in sounds, grammar, usage and meaning from Old English to present. Prerequisite or corequisite: ENG 290 or ENG 380.

ENG 483. Advanced Composition (3). Fall, Summer. Writing intensive course intended for students who want to develop their writing skills at an advanced level. Focus and subject matter will vary but rhetorical emphasis will guide the writing tasks and approaches. Prerequisite: Writing intensive course at the 200 level or above in any department. Extra fee.

ENG 484. Foundations of Teaching Writing (3). Fall, Spring. Historical and contemporary traditions that have led to the pedagogy and theories of teaching writing to adolescents. This course offers specific material and practice in writing assessment, writing assignments, developing writing groups, peer assessment and information about process involved in teaching writing to adolescents. Prerequisite: Junior standing.

ENG 485. Topics in Film Theory (3). On demand. In-depth study of one or more film theories such as semiotic, psychoanalytic, genre, feminist. Prerequisite: ENG 202. Extra fee.

ENG 486. Writing Process for Online Documents (3). Fall. Emphasis on theory, principles, and research about the writing process involved for online documents. Prerequisite: ENG 388 or permission of instructor.

ENG 487. Rhetoric and Writing of Science (3). Spring. Emphasis on theories, genres, and history of science writing. Focus on special rhetorical concerns for professional and popular audiences of scientific discourse. Prerequisite: ENG 388 or permission of instructor.

ENG 488. Advanced Technical Writing (3). Spring. Advanced study of theory and research in documentation. Student produces a substantial portfolio-quality project. Prerequisite: ENG 388 or permission of instructor. Extra fee.

ENG 489. Internships in Technical Communication (1-9). Fall, Spring, Summer. Work experience where technical communication students apply and practice the skills they have learned in their courses, and learn new skills from industry environments and their academic mentor/instructor. Prerequisite: approved registration form. Graded S/U.

ENG 498. Senior Project Tutorial (3). Fall, Spring. Student selects faculty member to guide work on topics such as major author, theme, period, genre or linguistics. Research and writing to produce a scholarly essay of approximately 25 pages. Prerequisite: 20 hours of English beyond ENG 112. Credit may not be received for both ENG 498 and ENG 499.

ENG 499. Senior Thesis Workshop (3). Fall, Spring. Workshop on research techniques and writing designed to assist students to produce a scholarly essay of approximately 25 pages. Credit may not be received for both ENG 498 and ENG 499. Prerequisite: 20 hours of English beyond ENG 112.

#### **ENVH Environmental Health**

ENVH 105. Environmental Health Science (3). Interactions between human activities, health and environmental systems. Use of scientific method in defining and solving environmental health science problems. Laboratory emphasis on pollution measurement, effects and control. Two one-hour lectures and one two-hour laboratory. Credit not given for more than one of ENVH 105 and BIOL 101. Applicable to the natural sciences general education requirement.

ENVH 210. The Global Commons: International Perspectives on Environmental Health and Protection (3). An examination of environmental conditions throughout the world, and how culture affects response to and perceptions of environmental conditions. Prerequisite or Corequisite: ENG 112 or equivalent. Applicable to the social sciences and international perspective general education requirements. Approved for web delivery.

ENVH 301. Public Health and Sanitation (3). Assessment of public health in the community. Institutional inspection techniques, communicable disease control, solid waste disposal and prevention of food-borne disease. Three hours lecture.

ENVH 302. Industrial Hygiene (3). Basic concepts in recognition, evaluation and control of workplace hazards including chemical, physical and biologic stressors. Three hours lecture. Prerequisite: CHEM 125.

ENVH 303. Industrial Hygiene Laboratory (1). Evaluation methods for chemical, noise, radiation and physical hazards in the workplace and environment. Three hours weekly. Corequisite: ENVH 302. Major restricted or instructor's consent.

ENVH 304. Air Quality Management (3). Principles of air quality; pollution sources, effects and control strategies. Three hours lecture. Prerequisite: CHEM 125.

ENVH 305. Air Quality Laboratory (1). Sampling and analysis methods in air quality control. three hours weekly. Corequisite: ENVH 304. Major restricted or instructor's consent.

ENVH 306. Environmental Regulation, Organization and Administration (3). Foundations of environmental law. Structure and function of federal, state, regional and local environmental agencies. Key environmental statutes. Environmental program administration.

ENVH 307. Occupational Safety (3). Workplace safety principles including regulations, program development and program implementation.

ENVH 308. Industrial Ventilation (3). Principles of ventilation. Design and evaluation of general dilution and local exhaust systems for control of industrial hazards. Prerequisites: MATH 128 or MATH 120 and MATH 129 or MATH 122 and MATH 129.

ENVH 309. Environmental Assessment Methods I (3). Introduction to methods of assessing environmental problems. Includes information and data sources, experimental design, sampling and analytical techniques and theory, statistical methods, field projects and technical reporting. Prerequisite: CHEM 125.

ENVH 310. Environmental Assessment Methods II (3). Advanced methods of assessing environmental problems. Includes information and data sources, experimental design, sampling and analytical techniques and theory, statistical methods and technical reporting. Prerequisite: ENVH 309.

ENVH 402. Principles of Water Quality (3). Properties of water and biological, chemical and physical pollutants. Relationship between use and quality. Management strategies. Three hours lecture. Prerequisites: CHEM 127 and CHEM 128.

ENVH 403. Water Quality Laboratory (1). Laboratory practices in water quality. Three hours weekly. Corequisite: ENVH 402. Major restricted or instructor's consent.

ENVH 405. Hazardous Material Management (3). Principles of managing hazardous waste and material, disposal, treatment, emergency response and clean-up. Consideration of environmental toxicology and risk assessment. Prerequisite: CHEM 127 and CHEM 128.

ENVH 407. Environmental Toxicology (3). Measurement, effects and mechanisms of toxicity on human health and the environment. Use of toxicology in environmental risk assessment and risk management. Prerequisite: CHEM 306 or consent of instructor.

ENVH 449. Epidemiology (3). Principles and methods of epidemiological investigation. Distribution and determinants of health and disease in humans. Three hours lecture. Prerequisite: Statistics course. Cross-listed as BIOL 449.

ENVH 470. Special Problems in Environmental Health (1-4). Student designs and carries out study or special project in area of interest. Prerequisite: consent of instructor. May be repeated.

ENVH 491. Environmental Health Practicum (1-3). Experience working under supervision in selected environmental, public health or health planning agencies or industries with environmental health units; emphasis on practice rather than observation. Prerequisites: instructor's permission, at least junior status. May be repeated up to 4 hours. Graded S/U.

ENVH 492. Comprehensive Environmental Health Practices (3). A capstone course for integrating environmental health principles into practical application. Dissemination and examination of internship research will also be considered. Prerequisite: ENVH 491.

#### ENVR Environmental Technology

ENVR 421. Industrial Pollution Control (3). Spring. Air and water pollution control regulations as they apply to industry. Functioning and selection of parameters of industrial pollution control equipment and selected case studies.

ENVR 490. Problems in Industrial Environment Technology (1-3). For advanced students wanting to conduct intensive study of selected problems in industrial environment technology. Prerequisite: consent of college. May be repeated. Graded S/U. Offered at Firelands only.

### **ENVS Environmental Studies**

ENVS 101. Introduction to Environmental Studies (3). Fall, Spring, Summer. Overview of environmental principles and concepts. Students consider contemporary environmental issues as they relate to the quality of life. Topics of environmental concern are used to develop skills in evaluation, analysis and values clarification. Credit not given for both ENVS 101 and ENVS 201. Applicable to the social sciences general education requirement. Extra fee. Approved for web delivery.

ENVS 201. Concepts in Environmental Studies (3). Fall. Introductory course for well-prepared students. May be taken in place of ENVS 101. Prerequisite: one year of high school environmental studies or consent of instructor. Credit is not given for both ENVS 101 and ENVS 201. Applicable to the social sciences general education requirement. Extra fee.

ENVS 253. Environments in Context (3). Fall. Field-based overview of environmental principles and concepts in context of their physical, cultural, social, economic, and ecological spaces. Comparison of similar sites around the world. Emphasis on resource sharing of U.S., Mexico, and Canada. Taught in the field as a 9 week field/camping trip across the U.S.A. Corequisites: GEOL 250, GEOL 251, and ACS 252. Prerequisite: permission of instructor. Honors credit optional. Credit given for only one: ENVS 101, ENVS 201, or ENVS 253. Applicable to the social sciences and international perspective general education requirements.

ENVS 301. Environmental Problems (3). Fall, Spring, Summer. In-depth study of specific environmental problems. Current and historic responses are examined through research and review of source materials. Emphasizes a synthesizing, multidisciplinary team approach to problem solving. Applicable to the social sciences general education requirement. Extra fee.

ENVS 334. Natural Area Interpretation (3). Fall. Exploration of a variety of natural ecosystems, including floodplains, oak savanna, prairies, swamps and marshland to provide a basic understanding of their natural history, plant/animal interactions and area-appropriate restoration processes: emphasis is on skills, knowledge and current techniques for presentation of natural area attributes to the public. Prerequisite: ENVS 101 or EVNS 201, or consent of instructor.

ENVS 400. Special Topics in Environmental Studies (1-3). Fall, Spring, Summer. Selected topics and subject areas in environmental studies. Offered to cover current environmental issues. Prerequisite: consent of instructor. Can be repeated for a maximum of 9 credits, if topics differ. Extra fee.

ENVS 401. Environmental Strategies (3). Fall, Spring. Investigation of strategies used by various organizations, industries, institutions and government agencies to solve current environmental problems. Models and simulation strategies are used to address toxic substances, water resources, pesticides, climate and wildlife dispersion. Two hours lecture/discussion, one two-hour lab. Prerequisites: ENVS 301 and one statistics course.

ENVS 402. Environmental Impact Statements (3). Fall, Spring. History, philosophy and legal authority for environmental impact statements and assessments. Specific documents are analyzed and the development of evidential information and techniques are included. Practice in writing an environmental impact statement is given using one or more current issues as a focus. Extra fee.

ENVS 403. Geographic Information Systems (4). Fall. Collection, manipulation, integration and automated display of spatial data from various disciplines with particular emphases on environmental geology, resource management and spatial

analysis. Three lectures and one three-hour laboratory. Credit allowed for no more than one: ENVS 403, GEOL 403 or GEOG 424.

ENVS 412. Great Lakes Ecosystems (3). Spring. An interdisciplinary study of Great Lakes ecosystems with emphasis on history, development, natural resources, environmental concerns, transboundary issues and the potential for international cooperation. Extra fee.

ENVS 413. Applications in Environmental Geographic Information Systems (3). Spring. Geographic Information Systems practice and theory applied to environmental problems. The course focuses on the use of ArcView software for modeling and interpreting the natural environment. Lectures are integrated into project-based lab exercises and group projects. Prerequisite: ENVS 101 or ENVS 201 or ENVH 301.

ENVS 415. Strategies and Resources for Environmental Education (3). Fall or Spring. Environmental education in the school, outdoors, and non-formal settings. Identification and use of resources; methods associated with learning process; field-based experiences.

ENVS 470. Readings/Research in Environmental Studies (1-3). Independent readings or research on topics of current or specialized interest in environmental studies. May include library, laboratory or field work. Prerequisite: consent of instructor. May be repeated to a maximum of six hours.

ENVS 489. Internship (1-3). Applied experience for students in environmental programs. Specific proposal and approval of undergraduate adviser and supervising instructor required prior to enrollment. May be repeated to a maximum of six hours. Prerequisite: junior standing. Graded S/U.

ENVS 493. Field Experience (1-6). On demand. Study of specific environmental problems or ecosystem attributes. May be repeated only once with different topics. Prerequisites: ENVS 101 or ENVS 201 or consent of instructor.

ENVS 495. Workshop in Environmental Science or Policy (1-6). Fall, Spring, Summer. Intensive educational experience on selected environmental topics. May be repeated for credit with different topics. Prerequisite: ENVS 101 or ENVS 201 or consent of instructor.

#### **ENVT Environmental Health Technology**

ENVT 270. Occupational Safety and Hygiene (3). Regulatory considerations, evaluation and control of industrial hazards, personal protective equipment, employee assistance programs, accident prevention and investigation, emergency planning. Three hours lecture. Offered at Firelands only.

ENVT 280. Applied Food Service ServSafe Certification Course (1). Covers the Hazard Analysis Critical Control Point (HACCP) food safety system principles, and the Ohio Food Rules. Offered at Firelands only.

ENVT 290. Experimental Studies in the Environment (1-3). Environmental study projects, workshops, or seminars dealing with air, water, or land resource utilization, planning and control. May be repeated up to six credits if topics vary.

ENVT 291. Field Experience (1-3). Paid work activity in environmental technology related to an occupational objective. One credit requires 180 hours of work. May be repeated up to 3 credits. Prerequisite: permission of site supervisor and adviser. Offered at Firelands only.

**ETHN Ethnic Studies**

ETHN 101. Introduction to Ethnic Studies (3). Fall, Spring, Summer. This gateway course to the field of Ethnic Studies introduces students to interdisciplinary analyses of race and ethnicity in the U.S. The course explores the social construction of race and ideologies of race in colonial conquest, slavery, and immigration. It also examines processes and negotiations of racialization and the intersections of race with other hierarchies. Applicable to the cultural diversity in the United States general education requirement.

ETHN 110. Introduction to Latinos in the United States (3). Fall, Spring. Latino experience in the United States; cultures, life experiences and the limited political, education, socio-economical opportunities of this minority. Applicable to the cultural diversity in the United States general education requirement.

ETHN 120. Introduction to Black Studies (3). Fall, Spring, Summer. Introduction to the black experience with special emphasis upon but not limited to the cultural experience of the United States. Applicable to the cultural diversity in the United States general education requirement.

ETHN 130. Introduction to Asian American Studies (3). Fall. Similarities and differences of the various components of the Asian American category with reference to their individual histories and collective situation from the 19th century to the present. Applicable to the cultural diversity in the United States general education requirement.

ETHN 160. Introduction to Native American Studies (3). Fall, Spring. Introduction to the Native American diaspora; general overview and comparative analysis of Native peoples of North America (U.S., Canada, and Mexico) in historical and cultural contexts.

ETHN 201. Ethnicity and Social Movements (3). Fall or Spring. The nature, causes, and consequences of those social movements born out of the diasporan histories and experiences of racial and ethnic peoples/communities in the United States.

ETHN 211. History of Mexican Americans (3). Spring. History of Mexican Americans from the Texas Revolution, Mexican-American War to the present. Applicable to the cultural diversity in the United States general education requirement.

ETHN 220. African Literature (3). Fall. Creative and critical writing in the English language by writers of African descent. Also writers from the Caribbean. Credit only allowed for one of ETHN 220, ROML 220. Applicable to the humanities and arts and international perspective general education requirements.

ETHN 230. The Native American in Film (3). Fall or Spring. Construction of the Native American in popular culture from 1950s to contemporary period, including Hollywood and independent film.

ETHN 260. Contemporary Issues in Native America (3). Fall. Examines selected contemporary issues in Native America; migration and urbanization, reservation economic development, activism and native land, water, fishing and hunting rights, education, religious freedom, self-determination and sovereignty. Applicable to the cultural diversity in the United States general education requirement.

ETHN 300. Topics in Ethnic Studies (3). Fall, Spring, Summer. Special ethnic topics of interest to students provided as a part of regular offering.

ETHN 301. Ethnicity in the United States (3). Fall, Spring, Summer. Advanced study of the methods and approaches of the discipline of ethnic studies by focusing on contemporary issues and comparative theories of ethnicity. Prerequisite: Any 100-level ETHN course. Applicable to the cultural diversity in the United States general education requirement.

ETHN 302. Women of Color in the United States (3). This course explores the ways in which race, gender, class, sexuality, and religion intersect and converge in shaping the lives of women of color in the United States. It emphasizes the diversity of experience of women of color as they resist and contest the material and cultural constraints that limit them. The course also focuses on women of color as agents of social and political change, and provides perspectives on the ways in which women of color shape and define American institutions and society. Applicable to the cultural diversity in the United States general education requirement.

ETHN 303. Race, Representation, and Culture (3). Fall, Spring, Summer. This course examines popular racialized stereotypes within the context of American popular culture. It interrogates the historical, social and ideological processes and practices that have constituted racialized identities in the United States.

ETHN 304. Ethnicity and Creative Writing (3). Spring. A writer's workshop focusing on the interaction between processes and strategies of creative writing and issues of ethnicity. Students create a portfolio of original writing which may include one or a combination of stage play, film/teleplay, fiction, poetry, essays, reviews, etc.

ETHN 310. Mexican Culture (3). Spring. The culture of Mexico in the 20th century with emphasis on economics and the national experience as reflected in the family, religion, arts and other select facets of the culture. Applicable to the humanities and arts and international perspective general education requirements.

ETHN 312. Chicanos in the United States (3). Spring. Mexican American culture in the U.S. Topics include family structure and roles, religion, education, and immigration, among other topics. Applicable to the cultural diversity in the United States general education requirement.

ETHN 320. Literature of Black Nationalism (3). Spring. Contributions made by African and African American writers to the rise of nationalism.

ETHN 340. Afro-American Cinematic Experience (3). Fall or Spring. Historical and contemporary portrayals of African-Americans in film. Emphasis on filmic approaches to race relations, cinematic elaboration of racial stereotypes, film and social experience of black life, and legitimation functions for film. Applicable to the humanities and arts general education requirement.

ETHN 351. International Perspectives on Women (3). Spring. An introduction to the lives and concerns of women around the world. Addresses the impact of the global order on women's day-to-day existence.

ETHN 361. Native American Women (3). Spring. Examines the social, political, economic and spiritual lives of Native American women of various tribal nations in their traditional and contemporary aspects. Applicable to the cultural diversity in the United States general education requirement.

ETHN 395. Workshop on Current Topics (1-3). Fall, Spring, Summer. Comprehensive study of America's ethnicity with special emphasis upon the represented ethnic groups in northwest Ohio.

ETHN 400. Senior Project (3). Fall, Spring, Summer. Directed individual research concerning issues in ethnic studies, resulting in a research paper. Prerequisites: senior status, ethnic studies major or minor, permission of instructor and approval of department.

ETHN 405. Qualitative Research Methods (3). Introduces students to modes of qualitative social research commonly found in field of ethnic studies and American culture studies. Focus on data gathering process as well as data analysis. Credit only allowed for one of ETHN 405, ACS 405.

ETHN 410. Mexican-American Social Thought (3). Spring. The development of the Mexican philosophical thought as related to the Chicano ideologies, their significant parallels within contemporary periods and institutions. Applicable to the cultural diversity in the United States general education requirement.

ETHN 415. Contemporary U.S. Immigration (3). Spring. Situating contemporary U.S. immigration in historical and global context, the course examines: who is migrating and why; how migrants create identities, communities, and economic niches; and how they transform racial, ethnic, gender, sexual, class and cultural hierarchies in the U.S.

ETHN 420. Latino/a Cultural Studies (3). Spring. This course examines the relationship between popular culture and constructions of race in the United States. Focusing on Latinos and Latinas, we will analyze patterns of representation of this racial/ethnic group, as well as patterns of production and consumption of popular culture.

ETHN 425. Discourses of Empire and Nation (3). Fall or Spring. Development of ideologies of race, ethnicities, and nations within colonial and postcolonial contexts. Applicable to the humanities and arts and international perspective general education requirements.

ETHN 430. National and Global Perspectives on Race and Ethnicity (3). Fall, Spring. The historical, structural, political, and everyday basis of ethnic difference and racial/ethnic conflict; focused case-study approach to comparing different systems of race and ethnic relations in the U.S., the Americas, or globally. Applicable to the social sciences and international perspective general education requirements.

ETHN 435. Race and Urban Housing (3). Fall. This course examines the history of residential segregation in the United States. Focusing on the period from the late-19th century to the present, we will examine phenomena such as urbanization, (im)migration, white-flight, industrialization and deindustrialization, wealth and poverty as it relates to the establishment of racial hierarchy in American society.

ETHN 440. Women and Globalization (3). Fall. Examine the intensification of globalization as a set of economic and cultural processes impelled by transnational migrations of capital and labor, and the incorporation of women in globalized workforces, spaces, institutions, and identities. Emphasis on how "Third World" and "racial-ethnic" women form the bottom of the global labor pool.

ETHN 460. Third World Cinema (3). Fall. Cinematic traditions and film practices in the Third World and among minoritarian film movements with emphasis on anti-colonial and postcolonial political film. Applicable to the humanities and arts and international perspective general education requirements.

ETHN 470. Readings in Ethnic Studies (1-3). Fall, Spring, Summer. Individual extensive readings in consultation with an Ethnic Studies faculty member in fields of special interest. May be repeated. Prerequisite: Open only to Ethnic Studies majors with permission of department Undergraduate Advisor.

ETHN 480. Seminar in Ethnic Studies (3). Fall, Spring, Summer. Specific content areas offered depends on demand and interest of staff. May be repeated three times. Prerequisite: consent of instructor. May or may not partially fulfill group requirements.

ETHN 489. Field Study in Ethnic Studies (1-3). Fall, Spring, Summer. Service learning course in which students are placed in local agencies, educational centers, or non-profit organizations that are relevant to the study of race and ethnicity. Prerequisites: Open only to Ethnic Studies majors with permission of the Department of Ethnic Studies Undergraduate Advisor. Graded S/U.

#### **F&N Food and Nutrition**

F&N 207. Introduction to Human Nutrition (3). Fall, Spring, Summer. Basic concepts and principles in the science of human nutrition, energy balance and weight control, individual nutrient needs, diet selection, nutrition related metabolism and physiological functions, nutritional diseases, and current human nutrition controversies. Approved for web delivery.

F&N 210. Fundamentals of Food Science (3). Fall, Spring. Science of foods in relation to chemical composition, nutritional value, processing methods, quality, and standards of identity. Two hours lecture and three hours of lab. Extra fee.

F&N 212. Food: Preparation, Availability, and Resources (3). Fall, Spring and on demand. Principles and application of basic food preparation, meal planning, and food delivery. Food availability, budgets, and food access of the individual, family, and community. Two hours of lecture, two hours of lab. Prerequisite: F&N 207 or consent of instructor. Extra fee.

F&N 230. Professional Catering Techniques (3). On demand. Techniques of food preparation and presentation germane to food service catering specialists. Prerequisite: F&N 210 or equivalent. Professional liability insurance required. Extra fee.

F&N 310. Nutritional Assessment and Counseling (3). Spring. Methods for evaluating nutritional status of individuals and population groups, and techniques used in diet instruction. Methods of quality assurance, program evaluation, laws, regulations, and standards affecting dietetic practice. Prerequisites: F&N 207 or consent of instructor. Extra fee.

F&N 326. Food and Culture (3). Fall, even years. Geographic, economic, political, religious, environmental, and cultural influences on dietary patterns in selected regions of the world and the United States. Emphasis is on skills needed for students to identify the relevant cultural food patterns among individuals and communities. Prerequisite: F&N 207 or consent of instructor. Extra fee.

F&N 331. Quantity Food Production (3). Fall. Planning and service of quantity foods for institutions and restaurants. Menu planning, purchasing, production scheduling, recipe standardization, receiving, storage and issuing. Two hours lecture, three hours clinical experience. Prerequisite: F&N 210 or consent of instructor.

F&N 333. Evaluation of Foodservice Facilities Layout and Equipment (3). Fall even years. Interpretation and evaluation of layout, design and space

requirements of contemporary foodservice facilities. Includes development of work analysis, prospectus, equipment requirements, atmosphere of work environments for efficient utilization of human and monetary resources. Two hours lecture, one two-hour lab.

F&N 335. Principles and Practice of Food Protection (3). Fall odd years. Principles involved in identification and prevention of the causes of food contamination. Public health regulations and microbiologic control measures in various food service operations. Could lead to Education Foundation Sanitation Certification. Three hours lecture.

F&N 389. Supervised Field Experience in Food and Nutrition (1-5). On demand. Supervised work experience in an approved site. Contact hours and specific requirements arranged with F&N faculty. May be repeated. Graded S/U.

F&N 431. Experimental Foods (3). Spring. Experimental methods of quality control and product development. Scientific reasoning applied to the methods of food preparation. Subjective and objective evaluation criteria will be practiced. Two hours of lecture and three hours of lab. Prerequisites: F&N 210, CHEM 306 or consent of instructor. Extra fee.

F&N 432. Advanced Nutrition (3). Spring. Topics in normal nutrition, nutrient metabolism interrelationships, and metabolic integration. Three hours of lecture. Prerequisites: F&N 207, CHEM 306, BIOL 332.

F&N 433. Principles of Foodservice Management (3). Spring. Management principles and procedures in institutional or commercial food services. Selection, training and supervision of personnel. Food procurement, production and marketing. Clinical practicum. Two hours lecture and three hours of clinical experience. Prerequisite: F&N 331 or consent of instructor.

F&N 434. Medical Nutrition Therapy I (3). Fall. Nutritional therapies for specific medical conditions. Assessment of nutritional status, implementation, monitoring, and evaluation of appropriate nutrition therapy (diet modification, enteral and parenteral nutrition support) for individuals with disease states. Roles of registered clinical dietitians. Prerequisites: F&N 310, F&N 432, CHEM 308, BIOL 332. Professional liability insurance required.

F&N 435. Life Cycle Nutrition: Pregnancy to Adolescence (3). Fall. Nutrition of pregnant women, infants, and children in health and disease, from prenatal period to adolescence. Prerequisite: F&N 207.

F&N 436. Life Cycle Nutrition: The Middle and Later Years (3). Spring, Summer. Psychological, physiological, and socio-economic factors affecting diet and nutritional needs in group and individual situations. Two hours of lecture and two hours of clinical experience. Prerequisites: F&N 207 and BIOL 332 or consent of instructor. Professional liability insurance required.

F&N 437. Advanced Foodservice Management (3). Management application to the unique aspects of the food service industry. Organizational, leadership, employee motivation, legal aspects of the industry. Involves role playing, case studies, and problem solving techniques. Prerequisite: FCS 489 or consent of instructor. Extra fee.

F&N 438. Medical Nutrition Therapy II (3). Spring. Pathophysiology of major disease states and impact on nutritional status and normal metabolism. Nutritional therapy for specific diseases. Physiological and biochemical basis for nutrition intervention in disease. Builds on principles introduced in F&N 434 Medical Nutritional Therapy I. Prerequisites: F&N 434 or consent of instructor. Professional liability insurance required.

F&N 440. Research Methods in Nutrition, Foods, and Dietetics (3). Fall. Methods in research design, data analysis, and presentation. Techniques in dietetics, nutrition, foods, foodservice management, and clinical studies. Preparation of research proposals, evaluating published research, and ethical issues. Prerequisites: F&N 310, F&N 432 and MATH 115 or equivalent.

F&N 442. Laboratory Methods in Food and Nutrition Sciences (4). Fall. Application of quantitative and qualitative physical, chemical, and instrumental methods of analysis in food and nutrition sciences. Three one-hour lectures and one three-hour lab. Prerequisites: F&N 210, F&N 310, and F&N 432 or consent of instructor. Extra fee.

F&N 470. Independent Study in Food and Nutrition (1-3). On demand. Supervised individual study. In-depth study of topics or problems in food and/or nutrition sciences. May be repeated. Prerequisite: consent of department.

F&N 480. Seminar in Food and Nutrition (1-3). Spring, and on demand. In-depth examination of contemporary issues, concepts, and topics in food and nutrition. Prerequisite: seniors only, or consent of instructor.

F&N 489. Internship in Food and Nutrition (5-12). On demand. Internship in a professional environment. Work settings are approved on an individual basis. May be repeated. Graded S/U.

#### **FCS Family and Consumer Sciences**

FCS 100. Professional Perspectives (1). Spring. Integrative focus to discipline of family and consumer sciences. Contemporary issues, pertinent resources, career options, professional leaders, organizations. Recommended for all majors. First eight weeks of semester (II). Graded S/U.

FCS 195. Telecourse on Current Topics in Family and Consumer Sciences (1-3). Selected introductory topics; departmentally supervised presentations via television complemented by seminars or other student-teacher interaction in groups or individually.

FCS 205. Resource Management (3). Fall, Spring. Effects of values and philosophy on decisions regarding family resources: time, energy, knowledge, ability, skills and attitudes in achieving family goals. Utilization of human and material resources in family managerial system.

FCS 250. Foundations of Family and Consumer Sciences (3). Fall even years. Family and consumer sciences: the profession, the role of the educator and understanding students; development of educational strategies including peer teaching through field and clinical experiences. One hour of seminar and three hours of experience in a professional setting. C/F hrs.: 50.

FCS 295. Telecourse on Current Topics in Family and Consumer Sciences (1-3). Selected advanced topics; departmentally supervised presentations via television complemented by seminars or other student-teacher interaction in groups or individually.

FCS 311. Family Resource Management (3). Spring even years. Integration and application of concepts; processes and principles of family resource management within household environment. Four hours lecture/lab plus arranged. Prerequisites: FCS 205 and F&N 207.

FCS 352. Vocational Family and Consumer Sciences in Secondary Schools (3). Fall odd years. Principles, objectives, curriculum instructional materials and methods of vocational family and consumer sciences. No S/U grade for family and

consumer sciences education majors. Prerequisites: FCS 250, EDFI 302 or junior standing. C/F hrs.: 10.

FCS 353. Organization and Teaching in a Vocational Job Training Program (3). Spring even years. Techniques of teaching, occupational analysis, curriculum planning and supervision of cooperative education in school programs and in vocational and technical schools. No S/U grade for family and consumer sciences education majors. Prerequisites: FCS 250; FCS 352 prerequisite or concurrent. C/F hrs: 20.

FCS 354. Curriculum Management in Family and Consumer Sciences (2). Spring odd years. Field experience and coordinated seminar examining curriculum management as it differs in urban, suburban or rural schools. No S/U grade for family and consumer sciences education majors. Arrangements made in consultation with family and consumer sciences education faculty. Prerequisite or corequisite: FCS 352. C/F hrs.: 45.

FCS 389. Supervised Field Experience (1-5). Fall, Spring, Summer. Supervised work experience of diversified nature in approved field site. Contact hours and specific requirements obtainable from authorized family and consumer sciences faculty members in the specialized areas. May be repeated. Prerequisite: consent of department. Graded S/U.

FCS 395. Workshop on Current Topics (1-3). Intensive educational experience on selected topics related to skill development, content update or materials development. Typically, an all-day or similar concentrated time format used. May be repeated on approval of adviser. Some workshops require transportation.

FCS 405. Family and Consumer Economics (3). Fall. Families' financial planning; conditions as they affect consumer decisions in relation to patterns of living, income and goals. Not open to students with credit for BUSE 240.

FCS 470. Independent Study (1-3). Fall, Spring, Summer. For advanced students who want to conduct intensive study of selected problems in family and consumer sciences. For undergraduate credit only. Prerequisite: consent of department chair.

FCS 480. Seminar in Family and Consumer Sciences (1-3). In-depth examination of topics in family and consumer sciences not covered by existing coursework. Repeatable once. Undergraduate credit only.

FCS 489. Internship (5-12). Fall, Spring, Summer. Internship in a professional environment. Work settings are approved on an individual basis. May be repeated. Graded S/U.

FCS 497. Student Teaching (1-16). Vocational family and consumer sciences classroom teaching at the secondary level under supervision on full-day basis. Conferences and seminars supplement program. College/program eligibility requirements must be met. C/F hrs.: 300. May be repeated. Graded S/U. Extra fee.

#### **FIN Finance**

FIN 200. Personal Finance (3). Fall, Spring. Personal financial management; budgeting, borrowing sources and costs; auto, property, and life insurance; home ownership financing; personal investment strategy; and retirement planning.

FIN 300. Business Finance (3). Fall, Spring, Summer. Acquisition of assets and funding in business enterprise. Fundamentals of financial analysis, working capital management, and investment and financing decision making. Prerequisites: ACCT 200 or ACCT 221, ECON 200, ECON 202 or ECON 203 and two years of high school algebra or equivalent.

FIN 304. Entrepreneurial Finance (3). Financial issues facing entrepreneurial and small business ventures. Topics include capital acquisition, cash flow management, financial analysis and methods for harvesting the venture. Does not count toward finance specialization in the BSBA program. Prerequisites: ACCT 200 or ACCT 221 and ECON 200 or ECON 202.

FIN 320. Risk Management and Insurance Planning (3). Fall, Spring. Methods and alternatives for managing property, liability, and human resource risk exposures. Identifying risk exposures, legal aspects of insurance, life insurance needs analysis and policies, property and casualty insurance, medical and disability insurance, Social Security benefits, and employee benefits. Prerequisites: ECON 200 or ECON 202 or ECON 203 and STAT 211 or equivalent.

FIN 330. Investment Analysis (3). Fall, Spring, Summer. Security evaluation theory. Presentation of the functions and operations of securities markets, appraisal of investment risks of specific securities; valuation and suitability of specific securities for investment; appropriateness of securities for inclusion in investment portfolios. Prerequisites: STAT 212 and grade of C or better in FIN 300.

FIN 340. Financial Markets (3). Fall, Spring. Nature and function of money and capital markets, with emphasis on interest rate determination and forces shaping structure of financial markets, including issues of regulation and control. Prerequisite: grade of C or better in FIN 300.

FIN 350. Corporate Finance (3). Fall, Spring, Summer. Advanced practices of financial management are developed. Financial models used in decision-making and their application to major areas of business finance are emphasized. Prerequisites: STAT 212 and grade of C or better in FIN 300.

FIN 410. International Financial Management (3). Fall, Spring. An extension of financial management to the international arena with emphasis on financial strategies of multinational corporations. Topics covered include foreign exchange markets, currency futures and options markets, swaps, international securities markets, managing and hedging currency risk, multinational financing strategies and capital budgeting, and international portfolio management. Prerequisite: grade of C or better in FIN 300.

FIN 411. Retirement Planning (3). Fall or Spring, Summer. Focuses on various aspects of personal retirement planning. Topics include retirement needs analysis and investments, qualified retirement plans, IRAs, distribution options, Social Security and Medicare benefits, and other employee benefits. Emphasis on the practical knowledge needed for choosing and designing the best retirement plan that will meet a client's needs from a tax and retirement standpoint. Prerequisite: grade of C or better in FIN 300.

FIN 412. Personal Financial Planning (3). Fall, Spring. Development of a client's comprehensive financial plan from the perspective of a professional financial planner. Review and integration of the five practical areas of financial planning including investment, insurance, tax, retirement, and estate planning. Prerequisite: grade of C or better in FIN 300.

FIN 435. Portfolio Management (3). Fall, Spring. Applications of security analysis and portfolio management. Extended discussion of topics in both security analysis and portfolio theory, applied security analysis, and development and management of investment portfolios. Prerequisite: grade of C or better in FIN 330.

FIN 445. Management of Financial Institutions (3). Fall, Spring. Management of commercial banks, investment banks, investment companies and other financial institutions. Emphasis on services and functions of financial institutions and management of risk in providing those services including lending, underwriting, deposit services, merger and acquisition assistance, and intermediation. Prerequisite: grade of C or better in FIN 340.

FIN 447. Real Estate Management (3). Summer. Investment decision making in land resource use, appraisal and investment analysis. Real estate location, markets, property rights, financing, taxation and valuation. Accepted by Ohio Real Estate Commission as one of four required courses for licensing exam. Prerequisite: grade of C or better in FIN 300.

FIN 455. Advanced Corporate Finance (3). Fall, Spring. The case method is used to apply decision-making procedures to realistic problems in financial management. Prerequisite: grade of C or better in FIN 350.

FIN 491. Studies In Finance (1-3). On demand. In-depth study of selected areas or contemporary problems. May be offered individually as well as in classes depending on student needs and nature of material. May be repeated to six hours. Prerequisite: approval of chair and instructor.

#### **FREN French**

FREN 101. Elementary French I (4). Fall, Spring. Beginning oral-aural study; attention to grammar. Four class periods and scheduled oral practice each week. Applicable to the humanities and arts and international perspective general education requirements.

FREN 102. Elementary French II (4). Fall, Spring. FREN 101 continued. Four class periods and scheduled oral practice each week. Prerequisites: FREN 101 or one year of French in high school.

FREN 201. Intermediate French I (3). Fall, Spring. Grammar review; development of the four skills. Three class periods and laboratory practice each week. Prerequisite: FREN 102 or two years of French in high school. Applicable to the humanities and arts and international perspective general education requirements.

FREN 202. Intermediate French II (3). Fall, Spring. FREN 201 continued. Three class periods and scheduled laboratory each week. Cannot be taken for credit if credit for FREN 212 has been received. Cannot be taken concurrently with FREN 212. Prerequisite: FREN 201 or three years of French in high school. Applicable to the humanities and arts and international perspective general education requirements.

FREN 212. French Cultural Readings IV (3). Fall, Spring. Cultural and historical aspects of the social, intellectual, and artistic life of French-speaking peoples. Reading, media, and class in English. Cannot be taken for credit if credit for FREN 202 has been received. Cannot be taken concurrently with FREN 202. Prerequisite: FREN 201 or three years of French in high school. Does not count as prerequisite for 300-level class. Applicable to the humanities and arts and international perspective general education requirements.

FREN 220. Language and Culture through Community Living (2). Fall, Spring. This course for French House residents is designed to improve conversational French and cultural awareness about French-speaking countries. Prerequisite: must be a French House resident.

FREN 284. French Canadian Life Through Literature (3). Selected authors studied in translation. Use of a socio-critical approach enables students to discover the particularity in the French Canadian expression of the American experience.

FREN 350. Problems in Translation (3). Practical work in translingual rendering of expository texts, stressing vocabulary building and critical reading. Prerequisite: FREN 202 or FREN 212.

FREN 353. French Diction (3). French pronunciation; syllabification, stress, linking, intonation. Prerequisite: FREN 202.

FREN 355. French Linguistics (3). Fall. Sound system and grammatical structures of modern French; practical application. Prerequisite: FREN 202.

FREN 356. Skills for Oral Proficiency (3). Fall, Spring. Development and intensive practice of oral skills and communication strategies. Emphasis on self-expression. Prerequisite: FREN 202.

FREN 357. Skills for Effective Writing (3). Fall, Spring. Development and intensive practice of writing skills and communication strategies. Emphasis on stylistics. Prerequisite: FREN 202.

FREN 363. Introduction to French Literature (3). Fall. Study of key authors, periods, genres, or themes in French literature. Prerequisites: FREN 356 and FREN 357, or permission of instructor.

FREN 366. Introduction to Francophone Literature (3). Spring. Comprehensive study and discussion of key texts and issues in the literature of French-speaking world outside France. Study of fictional and non-fictional texts. Prerequisites: FREN 356 and FREN 357, or permission of instructor.

FREN 373. Introduction to French Civilization (3). Spring. Past and/or contemporary French culture and civilization. Includes French history, politics, education, art, media, and/or popular culture. Prerequisites: FREN 356 and FREN 357, or permission of instructor.

FREN 376. Introduction to Francophone Civilizations (3). Fall. Cross-century study of historical, social, cultural, and economic aspects of French-speaking world outside France through political, social, intellectual, and artistic texts. Prerequisite: FREN 356 and FREN 357, or permission of instructor.

FREN 444. French Film (4). Overview of French film history; film as reflection of society; introduction to 'auteur' criticism and semiotics. Film in French and subtitles. English and French discussion sections. Prerequisite: 300/400 literature/culture course or permission. Extra fee.

FREN 451. Advanced Composition and Conversation (3). Development of fluency and accuracy in written and oral skills at an advanced level. Prerequisite: FREN 356 or FREN 357.

FREN 453. Advanced French Diction (3). Continued study of pronunciation, stress and intonation. Prerequisite: FREN 353.

FREN 454. Translation Workshop (3). Intensive practice in translating technical and literary texts. Emphasis on French to English translation. Intended to prepare student for certification by a professional translators organization. Prerequisite: FREN 350.

FREN 458. Career French I (3). Terminology used in commercial operations, economics, international trade; emphasis on business correspondence; some translation. Prerequisite: FREN 356 or FREN 357.

FREN 459. Career French II (3). Advanced study of the economic and administrative structures in France and in Francophone areas, with intensive concentration on French-related technical language. Prerequisite: FREN 458.

FREN 463. Topics in French Literature (3). Fall and/or Spring. Advanced study of selected texts, authors, genres, or themes in French literature. Prerequisite: FREN 363.

FREN 466. Topics in Francophone Literature (3). Fall and/or Spring. Advanced study of selected texts, authors, genres, or themes from the French-speaking world outside France. May be repeated. Prerequisite: FREN 366.

FREN 470. Independent Readings in French (1-3). Readings for the advanced student who wishes to study a particular author or period, or problem in language or civilization. Prerequisites: consent of department chair and instructor.

FREN 473. Topics in French Civilization (3). Fall and/or Spring. Advanced study of selected themes in French culture and civilization. May be repeated. Prerequisite: FREN 373.

FREN 476. Topics in Francophone Civilizations (3). Fall and/or Spring. Advanced study of topics in French-speaking cultures/civilizations outside France including colonialism, nationalism, immigration, cultural pluralism. Emphasis on cultures represented may vary. Prerequisite: FREN 376.

FREN 488. Seminar in French Language, Literature, Art, or Civilization (3). Fall and/or Spring. Intensive study of author, literary school, genre, theme, or advanced language issue. May be repeated if topics clearly differ. Prerequisite: FREN 363 or FREN 366.

### **GEOG Geography**

GEOG 121. World Geography: Eurasia and Africa (3). Fall, Spring. Geographical analysis of variations and interrelationships of physical, cultural, economic, political, and population factors across the earth's surface. Focus on Europe, Africa, Middle East, and Asia. Applicable to the social sciences and international perspective general education requirements. Approved for web delivery.

GEOG 122. World Geography: Americas and the Pacific (3). Fall, Spring. Geographical analysis of variations and interrelationships of physical, cultural, economic, political, and population factors across the earth's surface. Focus on North America, Latin America, Australia-New Zealand, and the Pacific Islands. Applicable to the social sciences and international perspective general education requirements. Approved for web delivery.

GEOG 125. Weather and Climate (3). Fall, Spring. Atmospheric elements and controls; earth-sun relationships, weather components, weather prediction, and climatic types and distribution. Two one-hour lectures, one-hour demonstration-discussion. Applicable to the natural sciences general education requirement. Approved for web delivery.

GEOG 126. Vegetation and Soils (3). Physical geography; distribution and classification of vegetation and soil types using maps and profiles. Two one-hour lectures, one-hour discussion-demonstration.

GEOG 127. Land Form Development and Distribution (3). Physical geography; processes of land form development, world-wide distribution of land forms, and U.S. physiographic features and regions. Two one-hour lectures, one-hour demonstration-discussion.

GEOG 213. Meteorology (3). Fall, Spring. Physical processes of atmosphere and relationships to daily weather patterns. Two one-hour lectures, one two-hour laboratory. Extra fee.

GEOG 225. Geography of the Global Economy (3). Fall. Geographical distribution of resources affecting development; location of economic activities, urbanization, regional growth, trade patterns, and changing global variations in development. Applicable to the social sciences and international perspective general education requirements.

GEOG 230. Cultural Geography (3). Fall, Spring. Geographic influences upon human activities on the earth's surface. Cultural processes and global patterns of religion, language, education, technology, diet, health, resource use, political organization, economic activity, social organization, settlement, and population. Applicable to the social sciences and international perspective general education requirements.

GEOG 300. Topics in Geography (3). Experimental courses considered part of regular offering.

GEOG 303. Severe Weather (3). Fall. Occurrence, cause and hazards of blizzards, surface cyclones, hurricanes, severe thunderstorms, tornadoes, lightning, hail, floods, droughts and unusual weather patterns.

GEOG 312. Marketing Geography (3). Spring. Geographical study of marketing concerned with the spatial nature of commerce. Primary focus on geodemographic analysis, GIS applications, and the location of retailing.

GEOG 321. Cartography and Map Communication (3). Fall or Spring. Practical map planning and construction, and production; thematic mapping; basic cartographic theory; and computer application. Two hours of lecture and two hours of lab. Extra fee.

GEOG 325. Population Geography (3). Fall. Spatial analysis of size, distribution, density, migration, age-sex composition, and dynamic factors of change in major world population regions and sub-regions. Applicable to the social sciences and international perspective general education requirements.

GEOG 331. Principles of Conservation Ecology (3). Fall. Principles necessary in considering environmental problems and application to various aspects of conservation; interdisciplinary approach combining social, biological and physical sciences. Applicable to the social sciences and international perspective general education requirements.

GEOG 333. Geography of Recreation and Tourism (3). Spatial aspects of outdoor recreation; assessment of present and future recreational resources; space for urban and rural areas, accessibility of these resources, governmental policies and tourism.

GEOG 337. Aboriginal Peoples of the United States and Canada (3). Spring. Past and present spatial aspects of aboriginal groups in the United States and Canada involving regions, diffusion, ecology, integration, and landscapes to enhance a cross-cultural awareness of differences and similarities among these cultures, their physical environments, and their interactions with European peoples.

Applicable to the cultural diversity in the United States general education requirement.

GEOG 340. Asia: East, Southeast, and South (3). Topical geographic analysis of the physical, cultural, political, demographic, agricultural, industrial, and international trade features of East, Southeast, and South Asia as they relate to development and change and the global role of this region.

GEOG 341. Russia and Its Neighbors (3). Geographic analysis of the physical, cultural, political, demographic, agricultural, industrial, and international trade features of Russia and its neighbors as they are related to the development of the region.

GEOG 342. United States and Canada (3). Fall every other year. Systematic and regional approach to understanding the interaction of people and the land in the United States and Canada, with an emphasis on economic, social, and political changes and challenges. Applicable to the cultural diversity in the United States general education requirement.

GEOG 343. Europe (3). Environments, cultures, utilization of resources, problems of development and future opportunities in European countries. Applicable to the social sciences and international perspective general education requirements.

GEOG 346. Middle East (3). Contemporary problems of Middle East; petroleum development and impact on society, food needs, population problems and spatial characteristics of religious and linguistic groups. Applicable to the social sciences and international perspective general education requirements.

GEOG 347. Africa (3). Analysis of the environmental and human geography of Africa, development opportunities and challenges, as well as contemporary interactions with other parts of the world.

GEOG 349. Latin America (3). Spring. Topical geographic analysis of the physical, cultural, political, demographic, agricultural, industrial, and international trade features of Mexico, Central America, Caribbean America, and South America as they are related to development of the region. Applicable to the social sciences and international perspective general education requirements.

GEOG 351. Ohio (3). Geographic analysis of the physical, cultural, political, demographic, urban, and economic diversity of Ohio historically and at present. Problems, prospects, and its role in the United States and the world are examined.

GEOG 400. Special Topics in Geography (3). Experimental courses considered part of regular offering. May be repeated with departmental permission.

GEOG 402. Regional Economic Geography (3). Problems of regions, including topics such as urban, rural, and regional planning/land use, transportation, urban sprawl, suburbanization, and urban entrepreneurship. Emphasis on individual projects.

GEOG 404. Climatology (3). Fundamentals and applications; drought, water resources, human comfort, health, architecture; short- and long-term climatic changes.

GEOG 412. Use and Interpretation of Aerial Photographs (3). Sources, types, characteristics, uses and limitations of aerial photographs. Training in use of standard equipment for stereoscopic viewing and height measurement.

GEOG 413. Introduction to Remote Sensing (3). Spring every other year. Principles and procedures used to obtain information about natural and cultural features through imagery derived from photographic, multispectral, thematic mapper and side-looking airborne radar sensor systems.

GEOG 422. Computer Mapping (3). Fall or Spring. Map construction and display of geographical data using the computer. Prior completion of CS 100 or GEOG 321 recommended. Extra fee.

GEOG 424. Geographic Information Systems (4). Fall or Spring. Collection, manipulation, integration and automated display of data with emphasis on geographic/spatial analysis. Three hours of lecture and three hours of lab. Prerequisite: GEOG 321 or GEOG 422 or consent of instructor. Credit allowed for no more than one: GEOL 403, ENVS 403, GEOG 424. Extra fee.

GEOG 425. Applied Geographic Information Systems--Human Dimensions (3). Spring every other year. Application of advanced GIS techniques to spatial analysis of human issues such as geodemographics, socio-economic, urban, and regional planning. Two lectures, one two-hour laboratory. Prerequisite: GEOG 424 or GEOL 403/ENVS 403 or consent of instructor.

GEOG 426. Urban Geography (3). Spring. Character, distribution, and development of cities in the world, with emphasis on American cities. Topics include locational relationships with respect to land use, areas of poverty, economic bases, urban-rural interactions and delivery of urban services. Applicable to the social sciences general education requirement.

GEOG 433. Soil Classification and Mapping (3). Classification of soils; use of soil survey equipment; preparation of soil type, slope and erosion maps of assigned areas. Prior completion of GEOG 126 recommended.

GEOG 435. Political Geography (3). Study of political features and processes from a geographical perspective. Issues include land use planning, zoning, electoral patterns, and geopolitical relationships of countries. Applicable to the social sciences and international perspective general education requirements.

GEOG 455. Global Atmospheric Problems (3). Interrelationships between humans and atmospheric environments; implications of air pollution, acid rain, snow, floods, drought, temperature extremes and global warming. Prior completion of GEOG 125 or GEOG 213 or GEOG 303 recommended.

GEOG 457. Global Water Resources (3). Analysis of the earth's water resources, surface water systems (drainage basins, rivers, lakes, reservoirs), distribution, supply demand, quality and hydrologic extremes. Prior completion of GEOG 125 recommended.

GEOG 489. Internship (3). Fall, Spring. Provides practical experience in applied geography, such as land use planning; urban and rural planning; recreational, regional and environmental planning; and location of industrial, commercial and health service facilities. May be repeated. Only six hours may be applied to GEOG major or minor; additional hours are for general electives. Graded S/U.

GEOG 490. Special Problems in Geography (1-3). Readings and research on varied topics to suit needs of student.

#### **GEOL Geology**

GEOL 100. Introduction to Geology (3). Fall, Spring, Summer. The earth; physical and historical geology; including economic, social and environmental aspects. Not open to geology majors and minors. Credit allowed for no more than one: GEOL

100, GEOL 101, GEOL 104. Applicable to the natural sciences general education requirement.

GEOL 101. Earth Science (3). Survey of earth's geology, oceanography, meteorology and place in the universe. Credit allowed for no more than one: GEOL 100, GEOL 101, GEOL 104.

GEOL 104. Earth Environments (4). Fall, Spring, Summer. Introduction to the science of geology. Relationship of man to physical environment of the earth and its natural resources. Three lectures and one two-hour laboratory. Credit allowed for no more than one: GEOL 100, GEOL 101, GEOL 104. Applicable to the natural sciences general education requirement. Extra fee.

GEOL 105. Life Through Time (4). Introduction to the origin, evolution, and extinction of major fossil groups in relation to a changing Earth through time. Three lectures and one two-hour lab. Applicable to the natural sciences general education requirement. Extra fee.

GEOL 199. Independent Study (1-3). On demand. Supervised study in Geology to meet student's need for special exploration in areas not covered by regular courses; projects chosen in consultation with advisor, may include library, field, and/or laboratory work. For lower division students only. May be repeated for a total of three hours. Prerequisite: consent of instructor.

GEOL 205. Geologic History of Man (3). Fall. Evolution, distribution, way of life and geologic history of prehistoric hominids. Applicable to the natural sciences general education requirement.

GEOL 215. Geologic History of Dinosaurs (3). Spring. Evolution, ways of life and extinction of the Dinosauria; geologic history of vertebrates and dinosaurs in relation to a changing earth. Two lectures and one two-hour laboratory. Applicable to the natural sciences general education requirement. Extra fee.

GEOL 250. Field-based Physical Geology (5). Fall. Introduction to geologic materials, structures, and landforms. Geology of selected national parks and regional geologic hazards. Emphasis on scientific methods. Experience reporting the findings of experiments orally and in writing. Interdisciplinary approach combining social and geological sciences. Taught as a 9-week field/camping trip across the U.S.A. Corequisites: GEOL 251, ACS 252, and ENVS 253. Prerequisite: permission of instructor. With GEOL 251, satisfies the natural sciences lab sequence and general education requirements. Honors credit optional. Applicable to the natural sciences general education requirement.

GEOL 251. Field-based Historical Geology (5). Fall. Methods, concepts, and principles for interpreting Earth history in the field; interactions of tectonic, biological, and climatic processes through time; emphasis on examples found in North America. Experience with conducting and reporting the results of a geological mapping project orally and in writing. Taught as a 9-week field/camping trip across the U.S.A. Corequisites: GEOL 250, ACS 252, and ENVS 253. Prerequisite: permission of instructor. With GEOL 250, satisfies the natural sciences lab sequence and general education requirements. Honors credit optional. Applicable to the natural sciences general education requirement.

GEOL 302. Earth Materials I (4). Fall. Classification, identification, chemistry, association, economics and genesis of crystals, minerals and rocks. Three lectures and one two-hour laboratory. Prerequisites or corequisites: GEOL 104, GEOL 315, and CHEM 125 or CHEM 135.

GEOL 303. Earth Materials II (4). Spring. A continuation of GEOL 302; identification, classification, chemistry, association and genesis of rocks.

Three lectures and one two-hour laboratory. One field trip required.  
Prerequisite: GEOL 302.

GEOL 304. Geology of the National Parks (4). U.S. regional geology as illustrated in the national park system. Three lectures and one two-hour laboratory. Prerequisite: GEOL 100 or GEOL 104.

GEOL 306. Rocks and Minerals (4). Non-technical study of earth materials as illustrated by gems, minerals and rocks. Two lectures and two two-hour laboratories. Not open to geology majors in B.S. program. Credit not given for GEOL 302 and GEOL 306. Prerequisite: GEOL 100 or GEOL 104.

GEOL 309. Earth Structures and Tectonics (4). Fall. Identification and interpretation of geologic structures; mechanics of rock deformation, fracturing and folding, plate tectonics and orogeny. Three lectures and one three-hour laboratory. Prerequisites: GEOL 302, PHYS 201 or PHYS 211, and MATH 129 or equivalent; or consent of instructor.

GEOL 315. Quantitative Methods in Geology (3). Uses of quantitative methods including summary statistics, regression analysis, and data visualization as applied to Geology. Presentation of research results required. Prerequisites: GEOL 104 or GEOL 105, MATH 128, or consent of instructor. Corequisite: GEOL 302.

GEOL 316. Sedimentation and Stratigraphy (4). Spring. Classification and origins of sedimentary rocks; depositional environments; stratigraphic principles and procedures. Three lectures and one two-hour laboratory. Prerequisites: GEOL 105 and GEOL 302.

GEOL 322. Human Environmental Geology (3). Environmental aspects of geology, including natural hazards, resource exploitation, waste disposal, pollution and biochemical cycles. One half-day field trip required. Credit not given for both GEOL 322 and GEOL 420. Prerequisite: GEOL 104. Applicable to the natural sciences general education requirement.

GEOL 401. Economic Geology (4). Classification and genesis of metallic ore deposits illustrated by study of classic areas. Three lectures and one two-hour laboratory. Prerequisites: GEOL 302 and GEOL 309.

GEOL 402. Computer Applications in Geology (3). Methods for the retrieval, extraction and manipulation of geological information and numerical data using computers. Prerequisites: minimum of nine credit hours in GEOL and knowledge of a computer language; or consent of instructor.

GEOL 403. Geographic Information Systems (4). Collection, manipulation, integration and automated display of spatial data from various disciplines with particular emphases on environmental geology, resource management and geographic analysis. Credit allowed for no more than one: GEOL 403, ENVS 403, GEOG 424.

GEOL 405. Volcanology (3). On demand. Study of volcanic phenomena; understanding eruptions and their products; impact on humans. Three lectures per week. Prerequisite: GEOL 302 or consent of instructor.

GEOL 410. Geomorphology (4). Systematic study of surface processes and landforms; applications to environmental and historical geology. Three lectures and one two-hour laboratory. Two field trips required. Prerequisite: GEOL 104.

GEOL 415. Paleontology (4). Fall. Principles of paleontology; major groups of fossil animals. Three lectures and one two-hour laboratory. Prerequisite: GEOL 105 or consent of instructor.

GEOL 418. Geology of Ohio (3). Alternate years. Bedrock and surficial geology of Ohio; state's economic-mineral resources. Two lectures and one two-hour laboratory. Three full-day field trips required. Prerequisites: GEOL 100 or GEOL 104 and GEOL 105.

GEOL 419. Vertebrate Paleontology (3). Fossil vertebrates and their morphology, classification and evolution. Two lectures and one two-hour laboratory. Prerequisite: GEOL 100, GEOL 101, GEOL 105 or BIOL 104.

GEOL 423. Tectonics (3). Tectonic elements in the continents and ocean basins interpreted within the framework of plate tectonics. Prerequisites: GEOL 309 and GEOL 316.

GEOL 425. Micropaleontology (3). Classification, morphology, phylogeny and paleoecology of selected groups of microfossils. Two lectures and one two-hour laboratory. Prerequisite: GEOL 415 or consent of instructor.

GEOL 431. Aqueous Geochemistry (4). Geochemistry of natural waters, including fluid/rock reactions, solution chemistry, solubility, and oxidation-reduction reactions. Three lectures and one three-hour laboratory. Prerequisites: GEOL 302, MATH 131 or MATH 134 (may be taken concurrently) or consent of instructor.

GEOL 432. Solid Earth Geophysics (4). Gravity, magnetic and seismic properties of the earth; plate tectonics. Three lectures and one two-hour problem-solving laboratory. Prerequisites: GEOL 309, PHYS 201 or PHYS 211, or consent of instructor.

GEOL 440. Geologic Remote Sensing (4). Use of remotely sensed multispectral data for geological applications. Data acquisition, image processing and interpretation. Recent advances in geologic remote-sensing research. Three lectures and one two-hour laboratory. Prerequisite: GEOL 309.

GEOL 445. Surface Water Hydrogeology (4). Geological aspects of flowing water at the earth's surface, emphasizing open-channel hydraulics, flood analysis, sediment transport and water quality. Three lectures and one recitation section. Prerequisite: GEOL 316.

GEOL 446. Groundwater Hydrogeology (4). Hydraulics of groundwater flow, hydrologic properties of geologic materials, evaluation of groundwater resources and contamination. Three lectures and one recitation section. Prerequisite: GEOL 316.

GEOL 470. Readings in Geology (1-3). On demand. Supervised independent readings in an area of Geology. Does not satisfy the 400-level elective requirement for Geology BS majors. May be repeated. Prerequisite: consent of instructor.

GEOL 480. Seminar in Geology (1-3). Study of selected topic. May be repeated. Prerequisite: consent of instructor.

GEOL 485. Current Topics in Geology (1). On demand. Current topics or issues in Geology. Does not satisfy the 400-level elective requirement for Geology BS majors. May be repeated. Prerequisite: consent of instructor. Graded S/U.

GEOL 490. Independent Research in Geology (1-3). On demand. Individual work for student who has shown proficiency and marked degree of independence in work. Does not satisfy the 400-level elective requirement for Geology BS majors. May be repeated. Prerequisite: consent of instructor.

GEOL 493. Field Experience (1-6). Summer only. Recognition and study of geologic materials, structures and landforms in the field. Written report required. Not

open to B.S. geology majors. Prerequisites: GEOL 104 and GEOL 105, or GEOL 304, or consent of instructor. Extra fee.

GEOL 494. Field Geology (6). Summer only. Principles and practices of field geology and geologic mapping. Final map and report required. Prerequisites: grade of C or better in both GEOL 309 and GEOL 316 or consent of instructor. Extra fee.

GEOL 498. Senior Thesis Proposal (1). Fall, Spring. Intensive independent study of a topic of interest in the geological sciences. Students first define then propose an original research project. Proposals will be presented orally. Prerequisites: GEOL 302, GEOL 309, GEOL 315, GEOL 316.

GEOL 499. Senior Thesis Research (2). Fall, Spring. Experience with conducting and reporting the results of an original research project on a topic of interest in the geological sciences. Reporting the results will be done as a written report and oral presentation. Prerequisite: GEOL 498.

#### **GERM German**

GERM 101. Elementary Language and Culture I (4). Fall, Spring. Cultural approach to beginning language study in the four skills: listening, speaking, reading, writing. Four class periods and laboratory practice each week. Applicable to the humanities and arts and international perspective general education requirements.

GERM 102. Elementary Language and Culture II (4). Fall, Spring. GERM 101 continued. Four class periods and laboratory practice each week. Prerequisite: GERM 101 or by placement. Applicable to the humanities and arts and international perspective general education requirements.

GERM 117. Beginning Conversational German I (2). Fall. Basic conversational German. Suggested as a supplemental course to accompany GERM 101 or may be taken independently. Not open to students who have completed GERM 102.

GERM 118. Beginning Conversational German II (2). Spring. Basic conversational German continued. Prerequisite: GERM 117, GERM 101 or permission of instructor. Not open to students who have begun or completed GERM 201.

GERM 201. Intermediate German I (3). Fall, Spring. Grammar review; development of the four skills. Three class periods and laboratory practice each week. Prerequisite: GERM 102 or by placement. Applicable to the humanities and arts and international perspective general education requirements.

GERM 202. Intermediate German II (3). Fall, Spring. GERM 201 continued. Three class periods and laboratory practice each week. Prerequisite: GERM 201 or by placement. Applicable to the humanities and arts and international perspective general education requirements.

GERM 217. Intermediate Conversational German I (2). Fall. Practice in conversation at the intermediate level. Suggested as supplemental course to accompany GERM 201, or may be taken independently. Not open to students who have begun or completed GERM 317. Prerequisite: GERM 118, GERM 102 or permission of instructor. Applicable to the humanities and arts and international perspective general education requirements.

GERM 218. Intermediate Conversational German II (2). Spring. GERM 217 continued. Not open to students who have begun or completed GERM 318. Prerequisite: GERM 217, GERM 201 or permission of instructor. Applicable to the humanities and arts and international perspective general education requirements.

GERM 231. Intermediate Reading (3). Development of reading skills in expository prose from various fields (scientific, technical, commercial and others). Vocabulary building, analysis of syntax and grammar for reading purposes. Prerequisite: GERM 102 or equivalent.

GERM 260. Modern German Literature in Translation (3). Readings in English of internationally known authors from German-speaking countries. May include Kafka, Mann, Hesse, Brecht, Grass and others. Course does not count toward a German major or minor. Applicable to the humanities and arts and international perspective general education requirements.

GERM 300. Introduction to Study Abroad (1). Spring. Preparation for study abroad. Limited to Salzburg and German Exchange Program participants. Course does not count toward German major or minor. Graded S/U.

GERM 311. Introduction to German Literature (3). Fall alternate years. Approaches to reading and interpreting representative works, primarily 20th century; development of reading comprehension, vocabulary skills, speaking ability (discussion), and intellectual appreciation. Also offered every fall in Salzburg. Prerequisite: GERM 202 or permission of instructor.

GERM 313. German Literature in Context (3). Fall alternate years. German literature in historical and social context based on topics such as crime, love, or mythology. Development of reading comprehension, vocabulary skills, speaking ability (discussion), and interpretive skills based primarily on 18th- and 19th-century texts. Also offered every spring in Salzburg. Prerequisite: GERM 202 or permission of instructor.

GERM 315. German Culture and Civilization (3). Cultural-historical treatment of the social, intellectual and artistic life of the German-speaking peoples from medieval times to World War II. Lectures, audio-visual presentations and readings in English.

GERM 316. Contemporary Germany (3). Lecture-reading course in English. Division of Germany after World War II; rebuilding and development of the two German states since 1949; political, economic and social systems, inter-German relations, patterns of daily living; revolution in East Germany and process of unification.

GERM 317. Composition and Conversation I (2-4). Fall. Extensive practice in speaking and writing German. (May be repeated for credit in AYA Salzburg Program.) Prerequisite: GERM 202 or by placement.

GERM 318. Composition and Conversation II (2-4). Spring. GERM 317 continued. (May be repeated for credit in AYA Salzburg Program.) Prerequisite: GERM 317 or permission of instructor.

GERM 319. German Phonetics and Pronunciation (1-2). Spring. Theory and practice of German pronunciation; introduction to phonetic principles. Prerequisite: prior completion of GERM 102 recommended.

GERM 331. Workshop in Translation (1-3). Spring. Small group work in German to English translation of scientific, technical or business writing or other types of expository prose in the student's specialty. May be repeated to six hours with different projects. Prerequisite: GERM 201, GERM 231 or permission of instructor.

GERM 360. Literature in Translation (3). Variable topic course on German literature in translation; may center on authors, periods, genres or themes. May be repeated to six hours with different topics. Prerequisite: previous

literature course in any department, or permission of instructor. Course does not count towards a German major or minor.

GERM 380. Topics in German Language, Thought or Culture (1-3). Topic chosen to meet curriculum needs and student requests. May be repeated to six hours with different topics.

GERM 400. Seminar in German Studies (2-4). Spring. Capstone seminar in German on topic from literature or culture. Approaches and tools of German studies with German language skills development. Seminar paper in German required. Prerequisites: GERM 311 or GERM 313 and GERM 318 or permission of instructor.

GERM 403. Women and the Third Reich (3). Race, ethnicity, class, religion, and sexual orientation in the context of the Third Reich using historical, sociological, autobiographical, and fictional texts written by or about women. Readings and discussion in English.

GERM 404. German Literature and Music (3). Relations between German literature and music. Rotating topics may include the texted works of one composer (Schubert, Wagner), musical settings of the works of one author (Goethe, Schiller, Heine), or music criticism (Schumann, Hoffmann). Readings and class conducted in English, with opportunity to read in German. Prerequisite: junior standing or permission of instructor.

GERM 413. Topics in 18th/19th-Century German Literature (3). Spring alternate years. Advanced study of German literature in German; topics may focus on a genre, author, or theme. Continued work on reading, writing, vocabulary, speaking; course and readings entirely in German. Prerequisite: GERM 313 or GERM 317 or permission of instructor.

GERM 414. Topics in 20th Century German Literature (3). Spring alternate years. Advanced study of German literature in German; topics may focus on a genre, author, or theme. Continued work on reading, writing, vocabulary, speaking; course and readings entirely in German. Prerequisite: GERM 311 or GERM 317 or permission of instructor.

GERM 415. The German Film (3). Cultural and literary aspects of German film; emphasis may be on important developments in German filmmaking, thematic aspects of film or on interrelationships between literary and cultural phenomena and the film. Extra fee.

GERM 416. Contemporary Austria (3). Fall. Offered in AYA Salzburg Program. Survey of political and social life, education, mass media, the arts and cultural life in present-day Austria. Guest lectures, discussion sessions, field trips. Prerequisite: admission to AYA program.

GERM 417. Advanced Composition and Conversation (2-4). Fall. Development of increased facility in speaking and writing. (May be repeated for credit in AYA Salzburg Program.) Prerequisite: GERM 318 or permission of instructor.

GERM 418. Stylistics, Syntax, and Structure of German (2-4). Spring. Practice and problems of writing style and syntax. Descriptive study of grammatical structures, contrastive analysis of English and German. (May be repeated for credit in AYA Salzburg Program.) Prerequisite: GERM 318 or permission of instructor.

GERM 419. German Drama Workshop (3). Practical advanced linguistic training through active participation in theatrical projects; advanced phonetics; methods of utilizing dramatic productions as part of foreign language instruction. Prerequisite: permission of instructor.

GERM 421. Business German (3). Fall. Offered in AYA Salzburg program. Acquisition and application of German vocabulary in business and economics. Topics include stock market, international business, and how to read the business section of a newspaper.

GERM 431. Advanced German-English Translation (1-3). Analysis and application of translation techniques; attention to levels and areas of style. Intensive general practice followed by work on individual projects. May be repeated to six hours with different projects. Prerequisites: six hours from GERM 317 and/or GERM 318 and/or GERM 331.

GERM 432. Advanced English-German Translation (1-3). Analysis and application of translating techniques; expansion on working vocabulary and idiomatic basis in German. Treatment of structural differences between languages through error analysis. General practice; individual projects. May be repeated to six hours. Prerequisites: six hours from GERM 317 and/or GERM 318 and/or GERM 331.

GERM 480. Selected Topics in German (1-4). Topic chosen from literature, culture or language to meet curriculum needs and student requests. May be repeated with different topics.

GERM 482. Introduction to German Linguistics (3). Derivation of modern Germanic languages from Proto-Indo-European. Classification and history of the Germanic language group. Development of the German language to New High German. Prerequisites: GERM 318 or permission of instructor.

GERM 491. Studies in German (1-3). Independent study project for advanced students in German. May be repeated to six hours with different projects. Prerequisites: arrangement with instructor and consent of department chair prior to registration.

### **GERO Gerontology**

GERO 101. Aging, the Individual and Society (3). Fall, Spring, Summer on demand. Study of aging from a multidisciplinary perspective; focus on the way people are thought about, evaluated and treated on the basis of their age.

GERO 301. Aging and Ethnicity in the United States (3). Fall. Examination and analysis of cultural diversity and ethnicity in the older population residing in the United States. Applicable to the cultural diversity in the United States general education requirement.

GERO 330. Psychosocial Aspects of Aging (3). Spring. Advanced study of psychosocial aspects of aging that combines traditional classroom instruction with structured interaction with older adults in the community. Prerequisite: GERO 101 or equivalent.

GERO 402. Health and Aging (3). Spring. Demographic characteristics, health status of older adults; impairments and chronic conditions most typically demonstrated by older adults; pertinent medical terminology; formal and informal supports available to address the health care needs of older adults. Prerequisite: GERO 101; AHS/GERO majors and GERO minors only.

GERO 405. Cross-Cultural Aging (3). Fall. Cross-cultural analysis of the aging process and the problems of the aged throughout the world. Prerequisite: GERO 101; GERO majors and minors only. Applicable to the social sciences and international perspective general education requirements.

GERO 410. Administration (3). Fall. Administration of human service agencies with aging clients. Goal setting, staffing, evaluation, budgeting and organizational structures. Prerequisite: GERO 101; GERO majors and minors only.

GERO 411. Principles of Nursing Home Administration (3). Spring. A capstone course for prospective nursing home administrators to assist them in the integration and concepts necessary for successful operation of a facility. Required of all gerontology majors who have selected the nursing home administration option. Open only to those students who have achieved senior standing in the nursing home administration option.

GERO 420. Proposal Writing (3). Spring. Funding potential, methods, design and proposals in human service agencies. Prerequisite: GERO 101; GERO majors and minors only.

GERO 422. Research in Social Gerontology (4). Fall. Logic of scientific inquiry; the complexity of gerontologic research; critical evaluation of measures, methods used in gerontologic research; hands-on experience in data analysis, interpretation and presentation. Prerequisites: GERO 101; MATH 115, PSYC 270 or SOC 369; AHS/GERO majors and GERO minors only.

GERO 440. Seminar in Gerontology (3). Spring. Interdisciplinary study of special topics in gerontology. May be repeated by consent of the director of the gerontology program. Restriction: advanced gerontology majors.

GERO 470. Special Topics in Gerontology (1-3). On demand. Independent study on subject matter related to gerontology not otherwise offered. May be repeated. Prerequisite: consent of program director.

GERO 491. Practicum in Gerontology (1-20). Fall, Spring, Summer. Experience in working under supervision in selected agencies providing services to the aged. Emphasis on practice rather than observation. May be repeated. Prerequisites: enrollment in gerontology program or permission of program director; junior or senior standing; 2.50 GPA prior to registration. Graded S/U.

GERO 493. Practicum Seminar (1). Fall, Spring, Summer. Analysis of problems and experiences encountered in practicum. Prerequisites: permission of program director and GERO 491. Graded S/U.

#### **GREA German, Russian, and East Asian**

GREA 250. Topics in Language and Culture (1-4). Small group and individualized work on special topics. May be repeated if topics differ.

#### **GRK Greek**

GRK 101. Elementary Greek I (4). Fall. Introduction to ancient Greek with a focus on listening, reading and writing.

GRK 102. Elementary Greek II (4). Spring. Introduction to ancient Greek with a focus on listening, reading and writing. Prerequisite: GRK 101 or one year of ancient Greek in high school.

GRK 201. Intermediate Greek I (3). Fall. Grammatical review and reading of ancient Greek texts. Prerequisite: GRK 102 or two years of ancient Greek in high school. Applicable to the humanities and arts and international perspective general education requirements.

GRK 202. Intermediate Greek II (3). Spring. Grammatical review and reading of ancient Greek texts. Prerequisite: GRK 201. Applicable to the humanities and arts and international perspective general education requirements.

GRK 361. Intermediate Greek Literature I (3). Fall. Grammatical review and advanced reading of ancient Greek texts. Prerequisite: GRK 202 or consent of section leader and instructor.

GRK 362. Intermediate Greek Literature II (3). Spring. Grammatical review and advanced reading of ancient Greek texts. Prerequisite: GRK 202 or consent of section leader and instructor.

GRK 470. Readings in Greek Literature (1-3). On demand. Advanced reading for students wishing to study special period or great author. Prerequisites: GRK 362 or consent of Classical Studies section leader and instructor. May be repeated with different topics up to 6 credits.

#### **HDFS Human Development and Family Studies**

HDFS 105. Human Development and the Family (3). Fall, Spring. Individual and family theories, examination of major domains of knowledge in human development and family studies, personal application.

HDFS 106. Families, Communities, and Schools (3). Fall. Introduction to systems theory, ecological contexts, and interrelations among families, cultures, communities, and schools. Review of employment opportunities in human and educational services.

HDFS 107. Black Families in America (3). Fall, Spring. Living patterns of the American black family: historical development, present status, strengths, problems and prognosis. Applicable to the cultural diversity in the United States general education requirement.

HDFS 120. Introduction to Professions in Human Development and Family Studies (3). Introduction to range of careers related to children and families. Professional issues related to qualification, preparations, and legal and ethical responsibilities.

HDFS 220. Infant and Toddler Development (3). Fall. Growth and development of infants and toddlers from conception to two years. Developmental theories and characteristics. Implications for enhancing development. Prerequisite: HDFS 106 or consent of instructor. C/F hrs.: 15.

HDFS 221. Child Development (3). Fall, Spring. Physical, emotional, social, and cognitive development of children from conception to middle years, emphasis on ages 2-10. Developmental theories; influences of family, peers, and society. C/F hours.: 15.

HDFS 223. Child Study (2). Spring. Learning about the development of young children as individuals and in groups using observation and other data gathering techniques.

HDFS 224. Program Planning for Young Children (3). Play, materials, methods for enhancing development of children under six. Planning, implementing, and evaluating experiences and activities with groups of young children. C/F hrs.: 50. Extra fee.

HDFS 301. Teaching Young Children I: Preschool (3). Fall, Spring. Historical and philosophical foundations of prekindergarten, program planning, learning environments, methods, and materials for enhancing development of preschool children with diverse cultural, family, and developmental characteristics. Prerequisite: HDFS 221. C/F hrs.:30.

HDFS 302. Contemporary Marriage and Family Relationships (3). Fall, Spring. Analysis of trends in marriage relationships in modern society, including family processes through the life cycle.

HDFS 322. Child Development Practicum (3). Fall, Spring. Supervised participation with preschool children. One hour seminar and five hours of lab. Must attend meeting during registration to be enrolled. Prerequisites: HDFS 221 and HDFS 301; admission to early childhood program. C/F hrs: 90. Transportation required. Extra fee.

HDFS 328. Preadolescent and Adolescent in Family and Community (3). Fall. Development and socialization of preadolescents and adolescents; youth growth, culture and potential problems. Focus on family and peers. A review of research relevant for intervention or service programming. Prerequisite: HDFS 105 or consent of instructor.

HDFS 407. Research in Human Development and Family Studies (3). Spring. Research methodology: completing a research project on a topic of the student's choice in the area of human development and family studies. Prerequisite: junior or senior standing.

HDFS 408. Minority Families in America (3). Spring. Investigation of family patterns among racial, ethnic and cultural minority groups in the United States. Theoretical analysis of minority family systems. Prerequisite: junior or senior standing. Applicable to the cultural diversity in the United States general education requirement.

HDFS 420. Social Interactions in Learning Environments (3). Fall, Spring. Theoretical explanations; developmental, individual, and contextual factors influencing social learning in young children. Implications for individual and group guidance/interventions to facilitate learning, independence, self-control, and effective interactions with others. Prerequisite: HDFS 321.

HDFS 421. Parent/School/Community Partnerships (3). Fall, Spring. Theories of parenting and interactive effects of parent-child relationships. Roles of parents and professionals including strategies for partnerships with families, schools, and community services.

HDFS 422. Cognitive Development of the Young Child (3). Contemporary theories of intellectual development of young children; research pertaining to specific concept areas and the development of related experiences. Prerequisite: HDFS 220 or HDFS 221 or consent of instructor.

HDFS 423. Organization of Programs for Young Children (3). Spring. Factors in organization and administration of programs for young children. Prerequisite: HDFS 322 or consent of instructor. C/F hrs.: 20.

HDFS 425. Children and Families Under Stress (3). Fall. Stresses related to children, adolescents and families throughout the life cycle. Emphasis on theory and research related to family role(s) and coping strategies. Prerequisites: HDFS 320 and HDFS 321 or consent of instructor.

HDFS 427. Introduction to Marriage and Family Counseling (3). Spring. Marriage and family counseling, including professional issues, major theories and techniques, introduction to family counseling skills. Prerequisites: HDFS 105 and HDFS 302 or consent of instructor.

HDFS 428. Sexuality in Human Development and Family Studies (3). Analysis of sexuality through the lifespan and within the context of family interaction. Focus on process of sexual development and on relationship dynamics. Intended

for students with backgrounds in sexual physiology and the social-psychological aspects of human sexuality. Prerequisite: PSYC 307, HED 338 or consent of instructor.

HDFS 429. The Family in the Middle and Later Years (3). Spring. The family in the middle and later years, with emphasis on relationship between spouses, and with children and grandchildren. Identification and critical analysis of factors associated with success and problem areas for such families.

HDFS 491. Prekindergarten Teaching Internship (1-16). Fall, Spring. Classroom teaching in a prekindergarten setting under supervision. Conferences and seminars supplement classroom teaching. Required for early childhood licensure. College/program eligibility requirements must be met. C/F. May be repeated. Graded S/U. Extra fee.

### **HED Health Education**

HED 215. Personal Wellness (3). Fall, Spring, Summer. Broad overview of the elements and principles of developing a wellness lifestyle. Personal assessment and behavior change techniques will be used to enhance health behavior.

HED 216. Introduction to Health Education (3). Fall, Spring. Introduction to the profession of health education. Fundamental concepts of health determinants, behavior determinants, process and practice, health education settings and the health education profession.

HED 310. Planning and Assessing Health Promotion Programs (3). Fall. Theories, principles and methods involved in the planning and evaluation of health promotion programs. Prerequisites: HED 215 and HED 216.

HED 338. Concepts of Human Sexuality (3). Fall, Spring, Summer. Information and concepts of human sexuality, including the physiological, social, psychological, moral and legal aspects. Prerequisite: junior standing or consent of instructor.

HED 340. Drug Use/Abuse (3). Fall, Spring. Knowledge regarding the ambiguity of drugs in society. Physical, psychological and social ramifications of drug use/abuse. Prerequisites: junior standing or consent of instructor.

HED 348. Instructional Techniques in Health Education K-12 (3). Spring. Principles, planning methods, materials, resources and human relations of teaching health. C/F hrs.: 4.

HED 393. Practicum in Health Education (2-5). Fall, Spring, Summer. An opportunity to observe and participate in health education activities in a professional setting on a limited basis. Includes campus seminars. May be repeated up to a total of five credit hours. Prerequisites: KNS 313, and HED 348 or HED 310.

HED 395. Workshop on Current Topics (1-3). Intensive educational experience on selected topics related to skills development, content update or materials developed. Typically, an all-day or similar concentrated time format. Requirements usually completed within time format. May be repeated on approval of adviser. Prerequisite: as decided by instructor.

HED 411. Organization and Administration of Health Agencies (3). Spring. Basic concepts for organization and administration of health agencies. Topics include Principles of organization, ethical and legal concerns, principles of management as they relate to fiscal and personnel policies, marketing, public relations, and health statistics and information systems. Prerequisite: HED 310.

HED 470. Independent Study in Health Education (1-3). An in-depth study project of a topic of particular significance to the student. Project must be approved by project supervisor and program area chair prior to registration. May be repeated.

HED 489. Internship in Health Education (15). Fall, Spring, Summer. A concentrated pre-professional experience for those preparing for a career in health education in settings other than schools. Prerequisites: Senior standing, satisfactory completion of HED 310 and a minimum GPA of 2.5. Petitioning and one three-credit-hour HED 393 experience required before registration.

#### **HHS Health and Human Services**

HHS 100. Seminar Health and Human Services (1-5). On demand. Interdisciplinary study of special health or human service topics. May be repeated. Prerequisite: consent of dean's office.

HHS 395. Workshop on Current Topics in Health and Human Services (1-4). On demand. Current topics and issues in health and human services areas. May be repeated if topics differ, with approval of program adviser.

HHS 440. Seminar Health and Human Services (1-5). On demand. Interdisciplinary study of special health or human service topics. May be repeated. Prerequisite: consent of dean's office.

#### **HIST History**

HIST 151. World Civilizations (3). Fall, Spring, Summer. Comparative study of how and why economic, social, political and intellectual factors shaped and defined the history of selected Western and non-Western civilizations in the ancient and medieval periods. Applicable to the social sciences and international perspective general education requirements.

HIST 152. The Modern World (3). Fall, Spring, Summer. Comparative study of how and why selected economic, social, political and intellectual revolutions of the modern world have transformed and are shaping contemporary European and non-Western cultures. Applicable to the social sciences and international perspective general education requirements. Approved for web delivery.

HIST 180. Asian Civilizations (3). Fall, Spring. Interdisciplinary study of Asian civilizations, such as China, Japan, Korea and India; emphasis on how and why socio-economic, political and intellectual developments shaped traditional cultures of Asia and transformed modern Asia into the fastest-growing region of the world. Credit allowed for only one of ASIA 180, HIST 180. Applicable to the social sciences and international perspective general education requirements.

HIST 191. Special Studies in History (2-3). On demand. Study of selected topics, methods, or subject areas. May be repeated if topics differ.

HIST 205. Early America (3). Fall, Spring, Summer. Selected constitutional, intellectual, political and social developments that defined and shaped America between its first European settlement and the end of Reconstruction. Applicable to the social sciences general education requirement. Approved for web delivery.

HIST 206. Modern America (3). Fall, Spring, Summer. How and why selected economic, intellectual, political and social developments transformed post-Civil War America and shaped 20th-century American society. Applicable to the social sciences general education requirement. Approved for web delivery.

HIST 291. Special Studies in History (2-3). On demand. Study of selected topics, methods, or subject areas.

HIST 301. American Military History (3). Fall. Development of American military institutions, policies, strategy, tactics from American Revolution to present.

HIST 303. World War II (3). Fall, Summer on demand. Background and causes of the war; the course, conduct and consequences of the struggle in Europe and Asia with special attention to strategy, technology, diplomacy and politics.

HIST 304. The Bible as History: The New Testament (3). On demand. Based on modern Biblical scholarship; analyzing the New Testament as a historical text reflecting the cultural matrix of Greco-Roman Palestine, conveying the eschatological message of Jesus through his disciples and maneuvering the evangelical mission of the early Christian church.

HIST 305. The Bible as History: The Old Testament (3). On demand. Major problems relating to text, content and context of the Old Testament as historically interpreted in modern Biblical scholarship with special attention to authenticity of evidence, integrity of explanation and continuity of experience found in Bible. Approved for web delivery.

HIST 306. History of Ohio (3). Spring. Precolonial background, early exploration, settlement, Ohio's place in national development in the 19th and 20th centuries.

HIST 309. Latin America Before Independence (3). On demand. The Pre-Columbian era; European discovery and conquest; the colonial era; wars of independence. Special attention is given to the role of indigenous and European cultures in shaping Latin American development.

HIST 310. Modern Latin America (3). Fall, Spring, Summer on demand. Common and unique social, economic, political and intellectual features of Latin American nations and Latin America's role in world affairs. Applicable to the social sciences and international perspective general education requirements.

HIST 311. United States-Latin American Relations, 1810-Present (3). On demand. Development of the Western Hemisphere idea, Panamericanism, Dollar Diplomacy, the Good Neighbor Policy, cooperation in World War II, the Cold War, the role of multinational corporations and U.S. response to social change in Latin America. Applicable to the social sciences and international perspective general education requirements.

HIST 314. Black Religion and Culture (3). Spring. Thematic history of the Black church from its African and British colonial roots to 1968. Focuses on reciprocal dynamics between church and community/state, including factors of race, ethnicity, gender and class.

HIST 315. Slavery in the Americas (3). On demand. African slave trade and various slave societies to which that traffic gave birth in the Western hemisphere. Emphasis on Cuba, Jamaica, Brazil and the American South.

HIST 317. African Cultures and Societies (3). Fall. This is an introductory course on Africa from the earliest times through the colonial and modern eras. Themes include origins, myths and stereotypes, artistic expressions and cultural values, socio-political and economic development, colonial experience and contemporary conditions.

HIST 319. Indian in American History (3). Spring, Fall. Indian responses to the European invasion of North America, Indian-white relations in the 19th and 20th centuries, Indian contributions to American culture and contemporary Indian life and culture on and off the reservation. Applicable to the cultural diversity in the United States general education requirement. Extra fee.

HIST 326. Women in American History (3). Spring. Women's experience in America from colonial period to modern times with emphasis on changes in women's working, family, sexual and political lives.

HIST 327. Women in Modern Europe (3). Fall alternate years. Cross-listed with women's studies as WS 327. Examination of women in Europe since 1750. Emphasis on changes in women's working, family, sexual and political lives in conjunction with Europe's economic and political modernization. Credit not given for both WS 327 and HIST 327.

HIST 337. The Vietnam War (3). Fall. The American experience in Vietnam from several perspectives: origins of the war and U.S. escalation; media coverage, public opinion and anti-war movements; U.S. withdrawal and communist victory; the war in retrospect as seen in American popular culture, political debate and foreign policy.

HIST 338. American Environmental History (3). Fall. Three centuries of changing American attitudes and actions toward the natural environment, the rise of the conservation movement, and the development of an ecological perspective. Prerequisite: completion of ENG 112. Credit allowed for only one of HIST 338, ACS 338.

HIST 357. English Origins of American Law (3). Fall. Medieval and early modern English history; origin and growth of legal and constitutional doctrines, institutions and procedures important to understanding the American legal system.

HIST 360. Representative Personalities of 20th Century (3). Spring. History of the 20th century looking at major themes and the roles played by leading individuals in them.

HIST 367. Hitler's Germany: Rise and Fall of Nazism (3). Fall. Major developments in Germany from defeat in 1918 through collapse in 1945 and recovery in Cold War era. Weimer Republic, Hitler, Third Reich, post-war reactions and conditions; keyed to causes and effects of Nazi totalitarianism and racism.

HIST 377. 20th Century Europe (3). Spring, Fall, Summer on demand. European historical development in 20th century; major forces, events and experiences that have shaped Europe and its place in contemporary world. Applicable to the social sciences and international perspective general education requirements.

HIST 381. United States and Asia (3). On demand. U.S. relations with China, Japan, India and southeast Asia in the 20th century; interaction of domestic politics and foreign policy; Asian nationalism, militarism, communism; America's involvement in wars and peace-making.

HIST 382. Chinese Civilization (3). On demand. History of Chinese dynasties, from ancient to modern times. Emphasis on cultural, social-economic and political development of the world's oldest continuous civilization before the early 20th century. Applicable to the social sciences and international perspective general education requirements.

HIST 384. Korean Civilization (3). On demand. History of Korea from ancient to modern times; emphasis on cultural, social-political and economic development of the Korean people. Importance of Korean tradition and transformation for our understanding of East Asia.

HIST 386. Japanese Culture: Multi-Media Approach (3). On demand. High culture in traditional Japan. Religion, visual arts, literature, theatre and uniquely Japanese arts. Political and institutional history as it relates to cultural development.

HIST 391. Special Studies in History (1-3). On demand. Content and theme vary with instructor. Designed to meet needs and interest of nonmajors. Course may be taken more than once for credit if topics differ.

HIST 400. Topics in History (2-3). On demand. Study of selected topics or subject areas. Course may be taken more than once for credit if topics differ.

HIST 401. Caesar and Christ: Social Worlds of Late Antiquity and Early Christianity (3). On demand. Basic issues and problems involved in tensions and conflicts between pagans and Christians that were eventually accommodated in the 4th century AD; social disaffection, political resistance and cultural alienation.

HIST 411. Modern Mexico (3). Fall. Analysis of the first Latin-American state to experience political, social and economic revolution in the 20th century; causes of the revolution, leaders and institutions produced; emergence of Mexico as a relatively stable and progressive state. Applicable to the social sciences and international perspective general education requirements.

HIST 413. Caribbean and Spanish Main (3). On demand. Political, economic and social development of Greater Antilles and Spanish Main from 17th to 20th centuries; war and trade, slavery, revolution, caudillism and communism in the Caribbean.

HIST 414. Canada (3). Spring. European colonial rivalry, problems of European-settled colonies, emergence of colonial self-government, confederation movement, search for national identity, nature of commonwealth nation, role as mediator in Anglo-American relations, importance as independent neighbor.

HIST 415. Spain and Portugal (3). On demand. Political, economic and social development of Iberian peninsula from invasion of Moors to 20th century dictators; reconquest, reign of Hapsburgs, Spanish Civil Wars, regimes of Franco and Salazar.

HIST 421. American Colonial History, 1492-1763 (3). On demand. European background of American history, establishment of European settlements and institutions, emergence of colonial culture, conflict between France and England for the New World.

HIST 422. American Revolutionary Era, 1763-1789 (3). On demand. Causes, course and consequences of the movement for independence in colonial British North America. Detailed analysis of strategies and campaigns of the War for Independence and of the development of state and national constitutional republicanism.

HIST 425. Early National U.S., 1789-1848 (3). Fall. Development and growth of American social, political and economic institutions from the ratification of the Constitution to the Mexican War. Topics include the emergence of new ideologies of race and gender, the market revolution, slavery and the Old South, antebellum religion and reform.

HIST 426. Civil War and Reconstruction, 1861-1877 (3). Spring. Political, economic and cultural conditions during the War; resulting problems to peoples and governments of both sections continuing through postwar period.

HIST 428. America Becomes Modern: 1877-1917 (3). On demand. How and why the United States was transformed into an urban-industrial society and the consequences of this transformation for American culture, society and politics.

HIST 429. America Comes of Age: 1917 - 1945 (3). On demand. Why and how the U.S. became a great, and then a global power. The new "associational" state, World War I and World War II, consumer culture, the "new" woman, the Great Depression. Applicable to the social sciences general education requirement.

HIST 430. U.S. Since 1945: Affluence and Anxiety (3). Spring, Summer on demand. Politics: persistence and demise of the New Deal party system; congressional coalitions. Public policy: Fair Deal, Eisenhower Equilibrium, Great Society, Reagan Revolution. Society: Red Scare, prosperity and poverty, conformity, black struggle, student revolt, feminism, Middle America and reaction to protest.

HIST 432. Aspects of African American History (3). Fall, Summer on demand. History of African descendants in the United States, focusing on social, political and cultural issues pertinent to the African American experience, from the African background to the present. Applicable to the cultural diversity in the United States general education requirement.

HIST 433. American Constitutional History (3). On demand. Development of constitutional law and institutions from the framing of the Constitution in 1787 to the present, with special attention to issues of federalism, civil rights and liberties, government regulatory authority and the role of the Supreme Court.

HIST 438. United States and the World, 1890-1945 (3). Fall alternate years. United States' emergence as a world power from the expansion of the late nineteenth century to World War II, with attention to political, economic, and cultural components of U.S. foreign policy during this period.

HIST 439. United States and the World: The Cold War Era (3). Spring. U.S. response to international problems since WWII with emphasis on the Cold War rivalry with the Soviet Union and China, the rise of the Third World, the wars in Korea, Vietnam, and the Persian Gulf, and U.S. involvement in Asia, the Middle East, Latin America, and Africa.

HIST 441. Ancient Greece (1000-400 B.C.) (3). On demand. Ancient Greek society and culture from "dark ages" through "golden age" of 5th century. Resourcefulness of Hellenism in democratic politics, imperialistic policies and classic products of Periclean Athens. Weakness of Greek civilization in coping with crises engendered by Atheno-Peloponnesian war.

HIST 442. Roman Revolution: From Gracchi Through Caesar Augustus (3). On demand. Crisis of social turbulence, political violence and cultural ambivalence that marked Rome's transition from city-state to world state; how and why Roman archaism, republicanism and imperialism contributed to collapse of Late Republic and creation of Early Empire.

HIST 444. The Making of Europe (3). On demand. Cultural, religious, political and economic aspects of the Middle Ages which established the framework for modern European civilization; cross-cultural contacts with the Christian and Islamic East.

HIST 446. Early Modern Europe 1450-1750 (3). On demand. Comparative study of European societies in an age of transition. Renaissance, Reformation, growth of absolutism and constitutionalism, economic expansion, social change, intellectual development and emergence of baroque art forms.

HIST 454. European Foreign Relations, 1914-Present (3). On demand. Foreign policies and diplomatic practices of the great powers and their leaders: World War I, postwar quest for stability; World War II; Europe in the Cold War; contemporary problems.

HIST 455. Europe Since 1945 (3). Fall. Europe since World War II. International events (division of Europe, Cold War, fall of Communism), domestic developments (evolution of modern welfare state) and impact of nationalism and internationalism. Prerequisite: HIST 152 or HIST 377.

HIST 456. The Holocaust and Anti-Semitism (3). On Demand. Anti-Semitism as a historical phenomenon, with emphasis on German National Socialism. Causes and consequences of the Holocaust; effects on European Jewery; post-war Nazi and racist movements in Germany.

HIST 458. England, 55 B.C.-1689 (3). Fall. Major constitutional, economic, political, religious and social developments through the 17th century: making of the Anglo-Saxon kingdom, feudal government and society, crisis of late medieval England, Tudor restoration of order, 17th-century civil war and revolution.

HIST 459. Great Britain, 1689-Present (3). Spring. Growth of parliamentary government; impact of the Enlightenment, French Revolution and industrialization; Victorian England; political and economic reform; two world wars and their consequences.

HIST 469. Imperial Russia (3). On demand. Development of Russian social, political and economic systems from the time of Peter the Great to the Revolution of 1917. Provides understanding of pattern of historical development with a grasp of basic resources necessary to continued study of Russian society.

HIST 470. 20th Century Russia (3). On demand. Development of Russian social, political and economic systems after the Revolution of 1917. Provides understanding of pattern of historical development with a grasp of basic resources necessary to continued study of Russian society. Applicable to the social sciences and international perspective general education requirements.

HIST 471. Russian Political Economy (3). On demand. Russian political and economic systems, their structure and functioning from beginning of modernization to present. Provides understanding of pattern of historical development with a grasp of basic resources necessary to continued analysis of contemporary Russian political economy.

HIST 475. Colonial Africa (3). Fall. This course examines the social-cultural, political and economic transformation that occurred in Africa in the nineteenth and twentieth centuries. Themes such as precolonial African traditional institutions, the slave trade, societies and revolutions, legitimate commerce, European imperialism, colonial rule, nationalism, decolonization and neo-colonialism will be considered.

HIST 476. Contemporary Africa (3). Spring. This course focuses on selected themes and case studies in contemporary African affairs from 1960 when most African countries gained their independence to the present. Themes to be examined include the nature of freedom which African countries regained from their European colonizers; ethnicity and the task of nation-building; and social, economic and political changes since independence.

HIST 477. Africa and World Politics (3). Spring. This course examines how both domestic and international issues impinge on Africa. Selected themes and case studies to be considered include the slave trade, European exploration and political aggression, World Wars and implications, Cold War and its aftermath,

and South Africa and apartheid; case studies such as the crises in Rwanda, Liberia, Somalia, Sierra Leone and their international implications will be examined.

HIST 480. Research Seminar (3). Fall, Spring. Required for all history majors by the end of the junior year, except with prior permission of the undergraduate adviser. Designed to introduce majors to methods and problems in historical research through exploration of topics selected by the instructor.

HIST 483. Modern China (3). On demand. Late Ch'ing (Qing) reforms, the Nationalist and Communist revolutions, and China's struggle for modernization. Development of Chinese culturalism, nationalism and socialism.

HIST 485. Pre-Modern Japan (3). On demand. History of Japan from earliest recorded civilization to the Tokugawa Period (1600-1868); origins of Japan, influence of Chinese and Korean civilizations, socio-economic development, high culture, trends in intellectual history, development of feudalism, samurai, and foundations of modern nation state.

HIST 486. Modern Japan (3). Spring. Major political, economic, and social developments from the mid-19th century to the present; transformation from feudalism to modern nation state, political parties, industrialization and economic development, science and technology, cultural change, imperialism and militarism, the Pacific War, post-war economic growth, and U.S. - Japanese relations.

HIST 489. Internship (1-3). Fall, Spring, Summer. Supervised field experience in an applied history setting. Prerequisite: junior/senior standing and permission of undergraduate adviser. Credit not applicable to history major or minor. May be repeated to maximum of six hours. Graded S/U.

HIST 495. Workshop on Current Topics (1-3). On demand. Intensive educational experience on selected topics. Typically an all-day or similar concentrated time format used. Requirements usually completed within time format. May be repeated if topics differ on approval of adviser.

HIST 496. Readings in History (1-3). Fall, Spring, Summer. Individual readings in consultation with instructor in fields of special historical interest. Prerequisites: consent of department chair and instructor.

### **HIT Health Information Technology**

HIT 100. Introduction to Health Information Systems (3). Survey of health care delivery systems and their levels of organization. Basic policies and procedures as they relate to technical information management standards as required by accreditation or licensing agencies. Three hours lecture, 24 hours clinical instruction. Offered at Firelands only.

HIT 104. Medicolegal Aspects of Health Information (2). The management of the medical record as a legal document, confidential communications, consents and authorizations for release of medical information. Current legal issues and problems. Offered at Firelands only.

HIT 112. Coding and Classification Systems ICD-9-CM (3). Coding, classifying and reimbursement systems utilizing ICD-9-CM. Skill in utilizing computerized encoding systems and application of reimbursement systems. Three hours lecture, 16 hours of clinical instruction per semester. Prerequisites: AHTH 131 or equivalent, AHTH 110 or MEDT 301, or permission of instructor. Offered at Firelands only.

HIT 160. Comparative Health Records (1-3). Review of current record format in the non-acute setting, including accreditation guidelines and standards for content. Prerequisite: HIT 100 and HIT 112 or HIT 203. Offered at Firelands only.

HIT 200. Information Systems for HIT (3). Components of modern information technology as it relates to health care including advanced systems applications, information technology planning and information resource management. Prerequisites: HIT 100 and MIS 200. Offered at Firelands only. Approved for web delivery.

HIT 201. Directed Practice I (2). Application of health information management theory to professional practice under supervision by a clinical supervisor at an external agency. One hour lecture per week and 80 directed practice hours per semester. Prerequisite: HIT 112. Corequisite: HIT 211. Offered at Firelands only.

HIT 203. Coding and Classification Systems: HCPCS and CPT (2). Coding, classification, and reimbursement systems utilizing HCPCS and CPT. Skill in utilizing computerized encoding systems. Current topics related to reimbursement schemes. Prerequisites: AHTH 131, AHTH 110 or MEDT 301, or permission of instructor. Offered at Firelands only.

HIT 205. Reimbursement Methodologies (2). Use of coded data and health information in reimbursement and payment systems appropriate to all health care settings and managed care. Prerequisites: HIT 100 and HIT 112 or HIT 203 or permission of instructor. Offered at Firelands only. Approved for web delivery.

HIT 210. Organization and Supervision of Health Information (1). Principles of organization and supervision in order to develop effective skills in leadership, motivation and team building techniques in the multidisciplinary health care industry. Emphasis on organizational skills applicable to the health information field. Offered at Firelands only.

HIT 211. Health Care Data Statistics and Data Literacy (3). Health and hospital data collection, analysis and presentation. Emphasis on effective use, collection, arrangement, presentation and verification of health care data. Three hours lecture. Prerequisite: HIT 100. Offered at Firelands only. Approved for web delivery.

HIT 213. Advanced Coding (2). Coding, classifying and reimbursement systems utilizing ICD-9-CM and CPT-4. One hour lecture, two hours assigned lab. Prerequisites: HIT 112 and HIT 203. Offered at Firelands only. Approved for web delivery.

HIT 215. Clinical Assessment and Performance Improvement (1). Principles of quality assessment process and provision of a framework for joining skills in collecting and analyzing data in health care. One hour lecture, eight hours clinical instruction per semester. Prerequisites: HIT 211 and BAT 209. Offered at Firelands only.

HIT 220. Directed Practice II (3). Application of health information management theory to professional practice under supervision by a clinical supervisor at an external agency. One hour lecture per week and 160 directed practice hours per semester. Prerequisite: HIT 201. Offered at Firelands only.

HIT 290. Topics Medical Record Technology (1-3). Medical record technology projects, workshops and seminars dealing with current topics not covered in existing courses. May be repeated up to six credits if topics vary.

Prerequisite: permission of instructor. Offered at Firelands only. Approved for web delivery.

HIT 291. Field Experience (1-3). Paid field work in a health information department under supervision of a Registered Record Administrator of Accredited Record Technician, or other qualified health information manager with the consultation of the program director. Prerequisite: permission of instructor. Offered at Firelands only.

#### **HNRS Honors**

HNRS 201. Introduction to Critical Thinking (4). Fall. Interdisciplinary inquiry in social sciences. Analysis of arguments through assumptions, ambiguity, data and fallacies; formulation of conclusions and alternative inferences; value assumptions and decision making. Prerequisite: admission to the honors program or permission of honors director. Applicable to the social sciences general education requirement.

HNRS 240. Honors Seminar: Social Sciences (3-5). Interdisciplinary social sciences seminar that integrates at least two different social sciences. Content and skills relate to both specific disciplines and social sciences in general. Satisfies Arts and Sciences group requirement. Prerequisite: admission to the honors program or permission of honors director. Applicable to the social sciences general education requirement.

HNRS 250. Honors Seminar: Natural Sciences (3-5). Interdisciplinary natural science seminar, integrating at least two different natural sciences. Content and skills relate to both specific disciplines and natural sciences in general. Satisfies Arts and Sciences group requirement. Prerequisite: admission to the honors program or permission of the honors director. Applicable to the natural sciences general education requirement.

HNRS 260. Interdisciplinary Humanities Seminar (3-5). Integrates at least two different humanities. Content and skills relate to both specific disciplines and humanities in general. Satisfies Arts and Sciences group requirement. Prerequisite: admission to the honors program or permission of the honors director. Applicable to the humanities and arts general education requirement.

HNRS 300. Special Topics Seminar (1-3). Subject matter varies. Special seminars are elective courses designed to meet the interest and curiosity of honors students. Prerequisite: approval of honors director. May be repeated up to six hours if topics differ.

HNRS 400. Special Topics Seminar (1-3). Subject matter varies. Special seminars are elective courses designed to meet the interest and curiosity of honors students. Prerequisite: approval of honors director. May be repeated to six hours if topics differ.

HNRS 490. Independent Study in Honors (1-5). For students who wish to pursue intensive study in honors independently or in conjunction with courses regularly offered. May be repeated. Prerequisite: consent of instructor and director of honors program.

HNRS 499. Senior Honors Project (3). Fall, Spring, Summer. Student selects two faculty from different disciplines to advise the work on a research or creative project that draws upon the knowledge and skills from at least two disciplines. Prerequisite: permission of honors director.

#### **HP Health Promotion**

HP 215. Health & Wellness (3). Fall, Spring, and Summer on demand. Heredity, environment, and lifestyle behaviors will be examined for their influence on

health. Topics include behavior change theory, fitness, stress management, nutrition, weight management, alcohol and other drugs, and sexual health.

HP 216. Introduction to Community and Worksite Health Promotion (3). Fall, Spring. An overview of health education theories, practice and planning models. Basic understanding of the determinants of health and behavior throughout the lifespan. Introduction to health promotion practices addressing the needs of individuals, families, and communities.

HP 308. Health Communication Strategies (3). Spring, and Summer on Demand. Instructional techniques, public speaking, materials development, digital technology, interactive learning activities, literature search strategies, software packages, and basic newsletter and website development.

HP 310. Program Planning and Evaluation (3). Fall. Theories, principles and methods involved in the planning and evaluation of health programs at the worksite and in the community. Prerequisites: HP 215, HP 216, and HP 308 or permission of instructor.

HP 311. Health Promotion and the Health Care System (3). Fall on odd-numbered years. Introduction to the health care and health insurance systems, including demand management and managed care, as they relate to health promotion planning, implementation and evaluation.

HP 338. Concepts of Human Sexuality (3). Fall, Spring, and Summer on demand. Health, biological, social, and psychological aspects of human sexuality. Prerequisite: junior standing or consent of instructor.

HP 340. Drug Use and Abuse (3). Fall, Spring, and Summer on demand. Health, physical, psychological, and social ramifications of drug use and abuse. Policies and practices used to address the problems of drug abuse. Prerequisite: junior standing or consent of instructor.

HP 389. Practicum in Health Promotion (1-6). Fall, Spring, Summer. Limited field experience consisting of observation and participation in health promotion activities. May be repeated for up to a total of 6 credit hours; 40 hours of fieldwork required per credit hour. Prerequisites: HP 308, HP 310, current CPR and First Aid certifications. Application deadlines: 11/1 for Spring; 4/1 for Summer and Fall.

HP 395. Workshop on Current Topics (1-3). Intensive educational experience on selected topics related to skills development, content update or materials developed. Typically, an all-day or similar concentrated time format. Requirements usually completed within time format. May be repeated on approval of adviser. Prerequisite: as decided by instructor.

HP 410. Ergonomics (3). Fall on even-numbered years. Overview of ergonomics and its application in preventing cumulative trauma disorders. Students will learn how to analyze work space, workflow, task design, and individual work habits, and make recommendations on how to more effectively adapt the job to the individual. Prerequisite: HP 215 or consent of the instructor.

HP 411. Organization and Administration of Health Promotion Programs (3). Spring. Basic concepts for management of health and social programs in community and workplace settings. Topics include ethical/legal concerns, fiscal and personnel policies, marketing, public relations, and strategic planning. Prerequisites: HP 310 or permission of instructor.

HP 412. Health Behavior Instructor (3). Fall and on demand. Students will obtain the knowledge, skills, and strategies for implementing and instructing behavior

change programs in weight management, stress management, and smoking cessation. Prerequisites: HP 215, HP 216, and HP 308, or permission of instructor.

HP 470. Independent Study in Health Promotion (1-3). An in-depth study project of a topic of particular significance to the student. Project must be approved by project supervisor and program area chair prior to registration. May be repeated.

HP 489. Internship in Health Promotion (10-15). Fall, Spring, Summer. Pre-professional field experience at an approved site; 40 hours of fieldwork required per credit hour. Prerequisites: Minimum GPA of 2.5 overall or > 2.75 in core courses, completion of HP 310 and HP 411 with a "C" or better, and approval of academic adviser. Application deadlines: 11/15 for Spring; 4/1 for Summer and Fall.

#### **HUM Humanities**

HUM 101. Introduction to the Humanities (3). Experience of art including music, film, theatre, literature, dance, painting, sculpture, architecture, philosophy and the combined arts. Applicable to the humanities and arts general education requirement. Offered at Firelands only.

HUM 200. Topics in Humanities (3). Basic humanities concepts organized on a single topic; self and culture, the combined arts, art and nature, mythology and symbolism, comic and tragic in art, language and culture. Can be repeated once if topics differ. Prerequisite: HUM 101 or consent of instructor. Offered at Firelands only.

#### **ID Interior Design**

ID 116. Introduction to Interior Design (3). Fall. Overview of the interior design profession; examination of the design process with emphasis on creative problem solving and development of competencies in space planning and presentations.

ID 117. Interior Design I (3). Fall, Spring. Color drawing techniques used in the simulation of materials in interior and exterior renderings. Experiments with various media, their uses and limitations as applicable to visual presentations by designers, architects, renderers, and illustrators. Two one-hour lectures, one two-hour studio. Interior Design majors only. Prerequisite: ARCH 105. Extra fee.

ID 219. Interior Design II (3). Fall, Spring. Programming, conceptualization and problem solving for residential and non-residential environments. Historic preservation and special population projects also included. Prerequisites: ID 116, ID 117. Six studio hours. Extra fee.

ID 303. Contemporary Interiors (3). Fall, Spring. Design elements, principles and color theory used to create the human environment. Finish and material selection for furnishings and other surface treatments. Interior Design majors only. Extra fee.

ID 319. Interior Design III (3). Fall. Small residential design with emphasis on space planning, furniture selection and layout in children and special populations projects. Prerequisites: ID 219 and ID 303. Extra fee.

ID 329. Interior Design IV (3). Spring. Large residential projects incorporating kitchen and bath detailing and visual presentation. Complete design concept and presentation with special attention to low income, energy conservation and specialized construction details. Prerequisite: ID 319. Six studio hours. Extra fee.

ID 333. Specifications, Codes, and Special Needs (2). Spring. Specification writing for interior finishes and furniture. Accessing local code information, fire safety and organizations that test product safety.

ID 345. Computers and Interior Design (3). Fall, Spring. Microcomputer applications for the professional practice of interior design; includes computer aided design, spread sheets, specifications and estimations. Prerequisites: CS 100 and ID 219. Extra fee.

ID 406. Housing the Family (3). Spring. Selecting, financing and adapting housing for families with varying lifestyles and needs. Energy efficiency, government role in housing, renting and owning options, and psychological needs emphasized. Extra fee.

ID 417. Interior Design V (3). Fall. Small non-residential design which incorporates programming, conceptualization, problem solving and evaluation for offices, retail and other small institutions. Prerequisites: ID 329. Extra fee.

ID 418. History of Interiors (3). Fall. European and American furniture from 14th through 20th centuries with corresponding interiors; wall, window and floor treatments and decorative arts. Prerequisite: ID 303 or consent of instructor.

ID 419. Interior Design VI (3). Spring. Large nonresidential design incorporating building systems, custom cabinetry and open office systems in historic preservation and adaptive reuse projects. Prerequisites: ID 333, ID 417. Six studio hours. Extra fee.

ID 423. Professional Practice in Interior Design (2). Spring. Ethics and business procedures for interior designers. Estimating, scheduling, budgeting and contract writing for installation of project. Preparation of resumes and portfolios for the profession.

#### **INST International Studies**

INST 200. Introduction to International Studies (3). Fall, Spring, Summer. This introduction to the International Studies major provides an interdisciplinary overview of the processes and effects of globalization. Major themes include population and migration (demographics), the role of women, environmental change, economic and political issues. Applicable to the social sciences and international perspective general education requirements. Approved for web delivery.

INST 210. Interpersonal Communication in International Contexts (3). Fall, Spring. In this course, students examine the ways in which humans create, exchange, and interpret meaning as a function of their national cultures. Readings and applied assignments stress intercultural sensitivity, empathy, and cross-cultural communication competence. Credit allowed for only one of IPC 210 and INST 210. Prerequisite: sophomore standing. Approved for web delivery.

INST 400. Seminar in International Studies (3). Spring or Fall. Capstone seminar which provides students with an intensive study of one or more major topics in international studies. Using approaches to inquiry in the field, students prepare a research project and formal presentation of their work related to their major focus in International Studies. Prerequisite: IS major or minor and junior status.

INST 489. Internship (1-12). Applied experience for majors. Specific proposal and permission of program adviser required prior to enrollment. Guidelines available from advisor. Graded S/U.

### **IPC Interpersonal Communication**

IPC 102. Speech Communication (3). Fall, Spring, Summer. Basic principles of interpersonal communication, small-group communication and public speaking; exercises and activities in each area with attention to individual needs.

IPC 201. Human Communication (3). Fall, Spring, Summer. Development of theoretical formulations in speech communication. Emphasis on special heuristic (not general explanatory) theories which focus on relationship factors, as well as speaker and message aspects. Interdisciplinary perspectives utilized. Prerequisite: IPC 102. Approved for web delivery.

IPC 203. Small Group Communication (3). Fall, Spring, Summer. Theory and practice in the analysis of social interaction in small groups as it affects problem solving and policy formation processes. Mass lecture plus lab sections. Prerequisite: IPC 102.

IPC 205. Presentational Speaking in Organizations (3). Fall, Spring. Principles of public communication, composition and public speaking, including practice. Prerequisite: IPC 102.

IPC 207. Interpersonal Communication I (3). Fall, Spring, Summer. Introduction to dyadic communication with a focus on factors which influence effectiveness. Practical experience in behaviors associated with interpersonal competence. Prerequisite: IPC 102.

IPC 209. Interpersonal Communication and Interviewing (3). Fall, Spring. Introduction to interviewing as interpersonal communication. Theory, research and practice in the selection interview, performance-appraisal interview, information-gathering interview, survey interview, problem-solving interview and persuasive interview.

IPC 210. Interpersonal Communication in International Contexts (3). Fall, Spring. In this course, students examine the ways in which humans create, exchange, and interpret meaning as a function of their national cultures. Readings and applied assignments stress intercultural sensitivity, empathy, and cross-cultural communication competence. Credit allowed for only one of IPC 210 and INST 210. Prerequisite: sophomore standing. Approved for web delivery.

IPC 303. Persuasive Communication (3). Fall, Spring, Summer. Theories and concepts of persuasive communication; attitude change, audience analysis and strategies of persuasion. Prerequisites: IPC 102 and IPC 201.

IPC 304. Leadership in Communication (3). Fall. Conceptions, methods and techniques of leadership related to communication. Emphasis on understanding and application of communication theories to leadership. Prerequisites: IPC 102 and IPC 201.

IPC 306. Interpersonal Communication (3). Fall, Spring, Summer. Two-party communication, reduction of defensive climates as means of facilitating effective communication. Practical experience in information seeking, persuasive and personal encounters. For nonmajors only.

IPC 307. Organizational Communication (3). Fall, Spring. Message initiation, diffusion and reception in organizational setting. Role of communication in establishing and maintaining climates, systems, cultures; organization's external environment. Prerequisites: IPC 102 and IPC 201.

IPC 308. Argumentation (3). Fall, Spring, Summer. Principles of argumentation; case analysis and construction; practice in forms of debating using contemporary topics. Prerequisites: IPC 102 and IPC 201.

IPC 310. Communication and Criticism (3). Fall. Theories and methods of criticism of rhetorical communication. The critical lens focuses on the important communicators and messages directed at intended audiences capable of modifying a significant rhetorical situation. Prerequisites: IPC 102 and IPC 201.

IPC 395. Workshop on Current Topics (1-3). On demand. Intensive educational experience on selected topics. Typically, an all-day or similar concentrated time format. May be repeated on approval of adviser, if topics differ. Prerequisites: IPC 102 and IPC 201.

IPC 402. Political Campaign Communication (3). Fall. Rhetorical theories and practices are central in this study of political campaign communication. Emphasis is placed on contemporary presidential campaigns and mediated messages. Prerequisites: IPC 102 and IPC 201.

IPC 404. Communication and Conflict (3). Fall, Spring. Communication skills in conflict situations in dyadic, group, and organizational settings; negotiation, mediation, and arbitration processes. Prerequisites: IPC 102 and IPC 201.

IPC 405. Computers Mediating Cultures and Organizations (3). This course explores how meaning-making processes and social formations shape communication and cultures within computer-based technological environments in a variety of contexts. We critically examine theory and practice of producing online multimediated spaces.

IPC 406. Topics in Communication Studies (3). Fall, Spring, Summer. Selected topics or subject areas within the field of communication, marital communication, legal speaking, assertiveness and nonverbal communication. May be repeated to six hours.

IPC 407. Interpersonal Communication II (3). Fall, Spring, Summer. Extended analysis of current theoretical positions and research in interpersonal communication. Topics include social exchange, rules, attribution, attraction, relational stages, power, impression formation and management. Prerequisites: IPC 102 and IPC 201, and IPC 207 or IPC 306.

IPC 408. Intercultural Communication (3). Fall. Communication variables in intercultural contexts. Culture and meaning, communication values in intercultural dialogue, culture as symbolic worldview, culture shock, conflict resolution across cultures. Prerequisites: IPC 102 and IPC 201.

IPC 409. International Communication (3). Fall, Spring. Relationships between communication and national cultures. Background theory and research in international communication encourages an appreciation of communication similarities and differences across nations. Applied development of international and global communication competence. Prerequisites: IPC 102 and IPC 201 or consent of instructor.

IPC 410. Perspectives on Freedom of Expression (3). Spring. Study and analysis of expression that is protected and unprotected under the First Amendment. Focus is on the meaning of 'Free Expression' as outlined in landmark cases and dramatized in selected feature films. Prerequisites: IPC 102 and IPC 201.

IPC 411. Performing Digitally Mediated Identities and Communication (3). This course examines how digital media shape and structure interpersonal and intercultural communication. Drawing on theories of interpersonal communication, culture, race and gender, this course exposes students to a variety of digitally

mediated socio-cultural spaces and engages them in an indepth critique and understanding of such communication contexts.

IPC 412. Communication and Gender (3). Spring, Summer. Theories and principles of communication, gender, and power issues in multiple contexts (interpersonal relationships among friends, family, and romantic partners, within organizations, media and advertising, and the academy). Prerequisites: IPC 102 and IPC 201.

IPC 420. Communication, Race, and Power (3). In this course, we will work together to investigate underlying racial politics in a number of contexts, seeking an understanding of those power structures that are often buried beneath our normalized communication practices. Our work will examine how race is constructed through our communication.

IPC 444. Health Communication (3). Fall, Spring. Theory, research, and principles of communication in health industries, public policy, and individual health; emphasis on U.S. health with attention to cultural and gender issues. Applicable for students interested in becoming care givers, health administrators, researchers in health, or are interested in their own health. Prerequisite: None.

IPC 489. Communication Internship (1-10). Fall, Spring, Summer. Field experience in communication. Study of communication as intern in public or commercial agency. Open only to IPC majors in BAC program. Prerequisites: IPC 102 and IPC 201, 2.5 overall GPA, junior status and 12 hours of completed IPC courses. Graded S/U.

IPC 490. Problems in Communication Studies (1-3). Fall, Spring. For advanced student who wishes to do intensive study in rhetoric, public address or communication studies independently or in conjunction with courses regularly offered. May be repeated. Prerequisites: IPC 102, IPC 201, and consent of department.

#### **ITAL Italian**

ITAL 101. Elementary Italian I (4). Fall. Cultural approach to beginning language. Development of the four skills: listening, speaking, reading, writing. Four class periods and laboratory practice each week. Applicable to the humanities and arts and international perspective general education requirements.

ITAL 102. Elementary Italian II (4). Spring. ITAL 101 continued. Four class periods and laboratory practice each week. Prerequisite: ITAL 101 or one year of Italian in high school.

ITAL 103. Intensive Elementary Italian (4). Spring. Intensive course emphasizes grammatical structure of language and oral practice. Recommended for graduate students and students with prior language experience.

ITAL 201. Intermediate Italian I (3). Fall. Grammar review. Development of the four language skills. Three classes and laboratory practice each week. Prerequisite: ITAL 102, two years of Italian in high school, or B or better in ITAL 103 and consent of instructor. Applicable to the humanities and arts and international perspective general education requirements.

ITAL 202. Intermediate Italian II (3). Spring. ITAL 201 continued. Three class periods and laboratory practice each week. Prerequisite: ITAL 201 or three years of Italian in high school. Applicable to the humanities and arts and international perspective general education requirements.

ITAL 260. Italian Literature in Translation (3). On demand. Readings in English of Italian authors. May include Dante, Petrarch, Boccaccio, Machiavelli, Galileo.

ITAL 261. The Italian Cinema (3). Modern Italian culture and literature movements and their expression in cinema; demonstrates close relationship between literature and cinema. In English. Extra fee.

ITAL 351. Italian Composition and Conversation I (3). Improvement of oral and written skills; emphasis on composition. Prerequisite: ITAL 202.

ITAL 352. Italian Composition and Conversation II (3). Improvement of oral and written skills in the language; emphasis on conversation. Prerequisite: ITAL 202.

ITAL 361. Introduction to Italian Literature (3). Chronological evaluation of outstanding works in Italian literature from Middle Ages to present; various movements and genres. Prerequisite: ITAL 202.

ITAL 371. Italian Civilization I (3). Political, social, intellectual, artistic life from Middle Ages through 19th century. Background for literary studies and preparation for teaching of Italian. Prerequisite: ITAL 202.

ITAL 372. Italian Civilization II (3). ITAL 372 continued; political, social, intellectual, artistic life of modern Italy. Prerequisite: ITAL 202.

ITAL 470. Independent Readings in Italian (1-3). For the advanced student who wishes to study a particular author or period, or a problem in language or civilization. Prerequisites: consent of chair of department and instructor.

ITAL 488. Italian Literature: Advanced Studies (3). Study of author, literary school, genre or selected theme. May be repeated to nine hours if topics are clearly different. Prerequisite: ITAL 361.

#### **JAPN Japanese**

JAPN 101. Elementary Language and Culture I (4). Fall. Introduction to modern spoken Japanese. Four class periods and scheduled oral practice each week. Applicable to the humanities and arts and international perspective general education requirements.

JAPN 102. Elementary Language and Culture II (4). Spring. JAPN 101 continued. Four class periods and scheduled oral practice each week. Prerequisite: JAPN 101 or equivalent. Applicable to the humanities and arts and international perspective general education requirements.

JAPN 200. Study Abroad I (2-6). On demand. Intermediate in-country Japanese language and culture training. Repeatable up to six hours if topics vary. Prerequisite: JAPN 102 or equivalent.

JAPN 201. Intermediate Japanese I (4). Fall. JAPN 101-JAPN 102 continued. Conversation, writing, reading, grammar. Three class periods and scheduled oral practice each week. Prerequisite: JAPN 102 or equivalent. Applicable to the humanities and arts and international perspective general education requirements.

JAPN 202. Intermediate Japanese II (4). Spring. JAPN 201 continued. Three class periods and scheduled oral practice each week. Prerequisite: JAPN 201 or equivalent. Applicable to the humanities and arts and international perspective general education requirements.

JAPN 300. Study Abroad II (2-6). On demand. Advanced in-country Japanese language and culture training. Repeatable up to six hours if topics vary. Prerequisite: JAPN 202 or equivalent.

JAPN 301. Third Year Japanese I (3). JAPN 201-202 continued. Development of the four skills. Three class periods and scheduled oral practice each week. Prerequisite: JAPN 202 or equivalent.

JAPN 302. Third Year Japanese II (3). Spring. JAPN 301 continued. Three class periods and scheduled oral practice each week. Prerequisite: JAPN 301 or equivalent.

JAPN 480. Selected Topics in Japanese (1-3). Topics chosen from Japanese literature, culture or thought to meet curriculum needs and student requests. May be repeated to six hours with different topics.

JAPN 491. Studies in Japanese (1-3). Independent reading for the advanced student. Prerequisites: arrangement with instructor and consent of department chair prior to registration.

### **JOUR Journalism**

JOUR 100. Introduction to Mass Communication (3). Fall, Spring, Summer. Modern journalism and mass communication; mass communication media and effects; role and influence of journalistic media such as newspapers, magazines, broadcast media, photojournalism, computers and related fields of advertising and public relations. Open to nonmajors. Credit not given to students with credit for TCOM 103.

JOUR 200. Introduction to Journalistic Writing (3). Fall, Spring, Summer. Introduction to newspaper, broadcast and public relations writing; emphasis on grammar, spelling, punctuation and sentence structure. Prerequisites include: at least 30 credit hours; ENG 112; JOUR 100 with at least a C; and an overall grade point average of 2.7. Application for this course is made in the School of Communication Studies office, 302 West Hall. Credit not allowed for both JOUR 200 and JOUR 201. Extra fee.

JOUR 201. Journalism Techniques for Nonmajors (3). Fall, Spring, Summer. Introduction to news gathering, news writing, news editing and journalistic graphics for nonjournalism majors whose programs might benefit from such a course. Credit not applicable toward major or minor in journalism. Credit not allowed for both JOUR 200 and JOUR 201. Prerequisite: ENG 112. Extra fee.

JOUR 250. Reporting (3). Fall, Spring, Summer. News gathering and news writing for all types of news stories ranging from the simple, factual story to the complex, specialized story. Practice in covering assignments for publication. Prerequisite: JOUR 200. Extra fee.

JOUR 310. Introduction to Visual Journalism (3). Introduction to news reportage through visual media. Includes sections on basic photographic techniques, such as composition, exposure, camera handling, film development and scanning. Also includes caption writing, news judgement, journalism ethics, publication design, desktop publishing and computer manipulation of images. Prerequisites: JOUR 200 and access to 35mm camera. Extra fee.

JOUR 315. Visual Editing (3). Spring. Techniques of processing and editing visual journalism texts. Emphasis on videojournalism, including videography, editing in both linear and non-linear forms, and outputting to tape, the Internet and other media. Techniques of using words and visual elements together. Prerequisite: JOUR 200. Extra fee.

JOUR 320. Feature Writing (3). Fall, Spring. Developing story ideas, researching and writing newspaper and magazine feature articles; researching free-lance markets. Prerequisites: JOUR 250; major or minor status; junior standing.

JOUR 325. Copy Editing (3). Fall. Theory and practice in editing local and wire news, headline writing, picture editing, evaluating news, layout and design, video display terminal operation. Prerequisites: JOUR 250; major or minor status; junior standing. Extra fee.

JOUR 330. Broadcast News (3). Fall. Techniques of writing, reporting and editing news for broadcast; rewriting wire copy; introduction to ENG shooting and editing techniques; preparation and use of television graphics. Student must provide own audio and video cassettes. Prerequisites: JOUR 250; JOUR 315; major or minor status; junior standing. Extra fee.

JOUR 341. Principles of Public Relations (3). Fall, Spring, Summer. Public relations problems, policies, practices applied to business and nonprofit organizations; media methods of communicating, survey research, and attitude change.

JOUR 344. Public Relations Writing (3). Fall, Spring. Planning and preparation for print and audio-visual public relations messages. Fundamentals of writing for publications including newsletters, house journals, pamphlets and brochures. Prerequisites: JOUR 250 and JOUR 341; major or minor status; junior standing.

JOUR 345. Media Publication and Design (3). Fall, Spring. Theory and practice of editing functions and techniques in producing specialized publications: magazines, newsletters, newspapers and brochures for business and nonprofit organizations. Electronic typesetting and computer graphics. Prerequisites: JOUR 250; major or minor status; junior standing. Extra fee.

JOUR 400. Field Experience (1-3). Fall, Spring, Summer. Journalism internship program required of all journalism majors and minors. Activity may be in more than one medium, full or part time, paid or voluntary. Prerequisites: JOUR 200; major or minor status. Graded S/U.

JOUR 410. Advanced Visual Journalism (3). Refining and building upon visual journalism skills, including the ability to produce news photographs as well as edit, critique and analyze the work of others. Designing, editing and producing news publications. Assembling a portfolio. Prerequisites: JOUR 250, JOUR 310 and JOUR 315; major or minor status; junior standing. Extra fee.

JOUR 414. Supervision of High School Publications (3). For prospective teachers of high school journalism or advisers of school newspapers or yearbooks. Problems of editorial supervision, business management and production. Open to nonmajors.

JOUR 420. Public Affairs Reporting (3). Spring. Field practice in covering governmental and community affairs with attention both to general and specialized areas. Prerequisites: JOUR 320; major or minor status; junior standing.

JOUR 430. Advanced Broadcast News (3). Spring. Writing, editing, producing and anchoring for broadcast. Emphasis on ENG shooting and editing, field reporting and studio production. Research on issues affecting broadcast journalists. Student must provide own videotape cassette. Prerequisites: JOUR 330; major or minor status; junior standing. Extra fee.

JOUR 440. Public Relations Campaigns (3). Spring. Application of public relations theories, tools and techniques to the public relations campaign.

Research, planning and execution are practiced. Prerequisites: JOUR 341, JOUR 344, and JOUR 345; major or minor status; senior standing.

JOUR 450. Journalism Law and Ethics (3). Fall, Spring, Summer. Legal concept of freedom of the press, constitutional guarantees, libel, privacy, copyright, broadcast regulation, contempt, obscenity, ethical problems, right to know. Open to nonmajors.

JOUR 455. Diversity Issues in the Media (3). Fall. Focus on the news media image of racial and ethnic minorities and the image of women and other underrepresented social groups. Exploration of the extent to which discrimination and prejudice function within news media industries in terms of employment opportunities and how news coverage perpetuates stereotypes of women, people of color and other underrepresented social groups. Open to nonmajors.

JOUR 460. Online Journalism (3). Reporting, writing and editing news for interactive media, particularly the Internet. Special emphasis on the unique attributes of interactive media and how these attributes affect content. Usability, web design and HTML authoring. Prerequisites: JOUR 250; major or minor status; junior standing.

JOUR 465. American Journalism History (3). Fall. American journalism from colonial newspapers to the multimedia age, emphasizing recurrent themes and issues in the history of the mainstream and alternative press. Open to nonmajors.

JOUR 475. Perspectives on International Media (3). Spring. Social, economic and political factors, organization and control in the national news and informational systems of countries around the world. Open to nonmajors.

JOUR 480. Special Problems in Journalism (1-3). Fall, Spring, Summer. Research problems, practical projects, intensive readings or mini-courses to meet needs of student's special interests. May be repeated. Prerequisite: instructor's consent.

JOUR 485. Media and Society (3). Spring. Media as institution, its role, content, effects and responsibilities as a cultural force in society. Topics vary. Open to nonmajors.

JOUR 490. Specialized Journalism Skills (1-3). Fall, Spring, Summer. Topics vary based on student and faculty interest and developments in the profession. May be repeated.

JOUR 495. Specialized Journalism Issues (1-3). Fall, Spring, Summer. Topics vary based on student and faculty interest and developments in the profession. May be repeated.

### **KNS Kinesiology**

KNS 110. Gymnastics - Men (2). Fall, Spring.

KNS 112. Gymnastics - Women (2). Fall, Spring.

KNS 116. Soccer (2). Fall, Spring.

KNS 121. Tennis (1). Development and analysis of tennis skills. Understanding of mechanical principles, selective attention-decision making, net game strategies, and rules and equipment. One two-hour laboratory.

KNS 123. Track and Field (2). Fall.

KNS 124. Volleyball (2). Fall, Spring.

KNS 137. Educational Dance (1). Fall. An introduction to the Movement Approach as a participant in educational dance. One two-hour laboratory.

KNS 138. Educational Gymnastics (1). Fall. An introduction to the Movement Approach as a participant in educational gymnastics. One two-hour laboratory.

KNS 202. Badminton (1). Fall, Spring.

KNS 203. Basketball (1). Fall, Spring.

KNS 204. Archery and Bowling (1). On demand. Skill development, analysis of motor performance and instructional strategies in archery and bowling. One two-hour laboratory. Extra fee.

KNS 207. Fencing (1). On demand. Skill and knowledge development basic to participation and understanding of fencing. One two-hour laboratory. Extra fee.

KNS 209. Golf (1). On demand. Skill and knowledge development basic to participation and understanding of golf. One two-hour laboratory. Extra fee.

KNS 214. Rebound Tumbling (1). Spring on demand.

KNS 217. Softball (1). Fall.

KNS 218. Swimming (1). Fall. Extra fee.

KNS 224. Outdoor Leisure Pursuits (1). Spring. Knowledge and skills of lifelong leisure activities such as camping, orienteering, hiking and aquatic-based experiences. One two-hour laboratory. Extra fee.

KNS 227. Introduction to Kinesiology (2). Fall, Spring. An introduction to the study of human movement and physical activity. Optional concurrent laboratory, KNS 228. Two, one-hour lectures.

KNS 228. Introduction to Kinesiology Laboratory (1). Practical experiences in observing and analyzing human movement. One two-hour laboratory. Required corequisite for Human Movement Science majors: KNS 227.

KNS 229. Lifetime Fitness (2). Fall, Spring. Development of, participation in and instructional strategies for exercise training programs. Discussion of lifetime fitness to enhance well-being. One one-hour lecture, one two-hour laboratory.

KNS 230. Structural and Functional Bases of Human Movement (3). Fall, Spring, Summer. The study of functional anatomy as applied to human movement. Two one-hour lectures; one two-hour laboratory. Prerequisites: C or better in BIOL 104, BIOL 205 or KNS 227. Extra fee.

KNS 232. Advanced Performance and Content Development in Invasion Games (2). Fall. Skill/strategy development for advanced performance/understanding of invasion games and content progression. One 1-hour lecture/one 2-hour laboratory.

KNS 233. Advanced Performance and Content Development in Net/Wall Games (2). Spring. Skill/strategy development for advanced performance/understanding of net/wall games and content progression. One 1-hour lecture/one 2-hour laboratory.

KNS 234. Advanced Performance and Content Development in Field Games (1). Fall. Skill/strategy development for advanced performance/understanding of field games and content progression. One 2-hour laboratory.

KNS 235. Professional Reading and Writing in Physical Education (1). On demand. Reading and interpretation of literature in physical education; writing professional paper; treatment of pertinent statistical techniques. Prerequisite: ENG 112.

KNS 238. Advanced Performance and Content Development in Educational Gymnastics (2). Spring. Advanced movement quality and content integration in educational gymnastics. One one-hour lecture, one two-hour laboratory. Prerequisite: KNS 138. C/F hrs.: 30.

KNS 240. Motor Development for Physical Educators and Coaches (2). Spring. Application of information about motor development sequences and developmental constraints analysis to the teaching of motor skills. One one-hour lecture, one two-hour laboratory. Prerequisite: KNS 230 or KNS 227.

KNS 241. Educational Games Teaching to Children (2). Fall. Movement approach to games/sports with special emphasis on program content, methodology and progression. One lecture, one laboratory. Prerequisite: KNS 137, KNS 138 or permission of instructor. C/F hrs.: 40.

KNS 242. Human Movement in Early Childhood (2). Fall, Spring, Summer. Contributions of movement experiences to the development of young children, birth-age 8. Planning/presenting developmentally appropriate activities. Thematic integration with other subjects as appropriate. One lecture/one laboratory.

KNS 243. Human Movement in Middle Childhood (2). Fall, Spring, Summer. Contributions of movement experiences to development of young children, age 8-14. Planning/teaching developmentally appropriate activities. Thematic integration with other subjects as appropriate. Two lectures.

KNS 247. Introduction to Teaching Physical Education (3). Fall, Spring. Introduction to the teaching of early childhood-young adult physical education. Two one-hour lectures, one two-hour laboratory. Prerequisites: KNS 137 or KNS 138; Minimum score 22 (ACT), 950 (SAT), or 172 on each Praxis I test. C/F hrs.: 32. Extra fee.

KNS 250. Principles of Motor Skill Acquisition (2). Fall. Principles of learning and memory as applied to motor skill acquisition. Emphasis is on the development of successful instructional strategies using motor skills acquisition principles. One one-hour lecture, one two-hour laboratory. Prerequisite: KNS 230 or KNS 227.

KNS 270. Biomechanics for Teachers, Performers and Coaches (2). Fall. The study of human motion using the methods and principles of mechanics. Emphasis on qualitative analysis and clinical movement applications. One one-hour lecture, one two-hour laboratory. Prerequisites: KNS 230, MATH 115 or higher.

KNS 312. Instructional Strategies in Physical Education (3). Fall, Spring, Summer. Developing and enhancing effective instructional strategies within physical education environments toward the teaching goal of developing skillful movers. Prerequisite: KNS 247.

KNS 313. Cardiopulmonary Resuscitation, First Aid, and Safety (2). Fall, Spring, Summer. Provides knowledge and training in the prevention and treatment of accidents, injuries, and procedures of basic life support. Satisfactory

completion may result in American Red Cross certification. Participation in skill practice required. One one-hour lecture, one two-hour laboratory. Extra fee.

KNS 314. Instructors Advanced First Aid and Emergency Care (1). Fall, Spring. Successful completion may lead to advanced instructor's certificate by the American Red Cross. One one-hour lecture, one one-hour lab. Prerequisites: junior standing and valid American Red Cross advanced first aid certificate. Extra fee.

KNS 315. Cardiopulmonary Resuscitation Recertification (1). Fall, Spring, Summer. Basic life support for victim of sudden cardiac arrest and/or respiratory failure. Satisfactory completion may result in American Red Cross Certification. Participation in skill practice required. One two-hour lab. Prerequisites: junior standing and prior CPR Certification. Extra fee.

KNS 322. Water Safety Instructor's Course (2). Fall on demand, Spring. Successful completion certifies student to conduct and to certify Red Cross swimming and lifesaving courses except WSI. One lecture, one laboratory. Prerequisites: current advanced lifesaving certificate and consent of instructor. Eligibility testing conducted first week of course. Extra fee.

KNS 328. Principles, Ethics and Problems of Coaching (3). Fall, Spring. Non-technical, off-the-field aspects of athletic coaching educational implications; coaching ethics; public relations; equipment; financing; liability; coach-athlete rapport.

KNS 329. Coaching Football (3). Fall. Development of personal skills and understandings in football; team administration, organization, philosophy, theory, fundamentals, strategy, methods and responsibilities of coaching football. Two lectures, two lab hours per week. Prerequisite: sophomore standing.

KNS 331. Coaching Basketball (2). Spring. Administration, organization, philosophy, theory, strategy, methods and responsibilities of coaching basketball. One lecture, two lab hours per week. Prerequisite: KNS 203-Basketball.

KNS 337. Advanced Performance and Content Development in Educational Dance (3). Spring. Advanced movement quality and content integration in educational dance. Two one-hour lectures, one two-hour laboratory. Prerequisites: KNS 137, DANC 101, and DANC 102. C/F hrs.: 30.

KNS 339. Coaching of Interscholastic Sports: A Practicum (2). Fall, Spring. Offers prospective coaches instruction in planning, teaching, administrative functions, safety, and liability essential to effective coaching. Taken during semester in which selected sport is in season. One lecture hour and arranged practicum hours. Prerequisites: KNS 313 and KNS 328.

KNS 340. Motor Development Across the Lifespan (3). Fall. Changes in human movement over the lifespan and the theoretical and empirical reasons for those changes. Two one-hour lectures, one two-hour laboratory. Prerequisites: KNS 230, PSYC 101. Extra fee.

KNS 342. Physical Education in the Elementary School (3). Fall, Spring, Summer. Movement approach to teaching elementary school physical education; human movement content knowledge; emphasis on conceptual and developmental perspectives. Prerequisites: KNS 137 and/or KNS 138 recommended; EDFI 302 required; or consent of instructor. Extra fee.

KNS 350. Motor Learning (3). Spring. Principles/theories of learning and memory applied to motor skill acquisition. Emphasis on factors influencing and the development of successful instructional and training strategies. Two one-hour lectures, one two-hour laboratory. Prerequisites: KNS 230, MATH 115 or higher. Extra fee.

KNS 355. Socio-cultural and Psychological Foundations of Teaching Physical Education (2). Fall, Summer on demand. Socio-cultural and psychological foundations of physical education curriculum and instruction. Two, 1-hour lectures.

KNS 356. Historical, Philosophical and Curricular Foundations of Physical Education (3). Spring, Summer on demand. The study of history, philosophy, and curriculum as related to physical education. Three lecture hours. Prerequisite: KNS 247.

KNS 360. Exercise Physiology (3). Fall, Spring, Summer. The immediate and long-range effects of exercise upon the human body. Two one-hour lectures, one two-hour laboratory. Prerequisite: BIOL 104/BIOL 332 or BIOL 205, MATH 115 or higher. Extra fee.

KNS 361. Applied Exercise Physiology (3). Spring. Basic concepts and mechanisms of human physiology applied to exercise testing and training, practical assessments, and laboratory instrumentation. One two-hour lecture, one two-hour laboratory. Prerequisite: KNS 360. Extra fee.

KNS 370. Biomechanics of Human Movement (3). Spring. Application of principles of mechanics to the study of human motion. Emphasis placed on theory and quantitative analysis. Two one-hour lectures; one two-hour laboratory. Prerequisites: KNS 230 or BIOL 331, PHYS 101 or PHYS 201, and MATH 120 or higher. Extra fee.

KNS 387. Practicum (1-5). Fall, Spring, Summer. Under supervision of KNS Division of Human Movement, Sport, and Leisure Studies. Petitioning and approval required of each student before registration. Credit hours for each experience approved separately by program area. May be repeated if topics differ. Prerequisite: Approval of appropriate KNS Division faculty. Extra fee.

KNS 395. Workshop on Current Topics in Kinesiology (1-3). On demand. Intensive study of selected topics in kinesiology. May be repeated up to 12 hours if topics are different.

KNS 400. Facilitating Movement Change in a Tutorial Setting (3). Fall, Spring. Application of the principles of motor skill instruction to a tutorial setting. Two one-hour lectures, one two-hour laboratory. Prerequisites: KNS 340, KNS 350, KNS 360, and KNS 370.

KNS 402. Measurement and Evaluation of Human Movement (3). Spring. Measurement and evaluation principles and techniques applied to all areas of human motor activity. Two one-hour lectures and one two-hour laboratory. Prerequisite: MATH 115 or higher. C/F hrs.: 40. Extra fee.

KNS 423. Exercise Testing and Prescription (3). Fall. Selection, design, and application of exercise testing and exercise prescription principles. Three one-hour lectures. Prerequisite: KNS 360.

KNS 425. Exercise Testing and Prescription for Special Cases (3). Spring alternate years, Summers on demand. Overview of exercise testing, electrocardiogram (EKG) interpretation, and exercise prescription for monitoring exercisers with special conditions due to age or disease (e.g., cardiac disease

and abnormalities, hypertension, obesity, diabetes, etc.). Three, 1-hour lectures. Prerequisite: KNS 423 or permission of instructor.

KNS 429. Sport Conditioning (3). Fall. Theory and application of biomechanical and physiological principles to the development of strength and conditioning programs for selected sports. Three one-hour lectures. Prerequisites: KNS 230 and KNS 360 or consent of instructor.

KNS 432. Teaching-Learning Process in Early-Middle Childhood Physical Education (3). Fall, Spring. Refining the teaching-learning process in early-middle childhood physical education. Two 1-hour lectures/one 2-hour laboratory. Prerequisites: KNS 137, KNS 138, KNS 312, and PETE Program Admission. Extra fee.

KNS 433. Adapted Physical Activity (3). Fall, Spring. Principles, objectives, history and programming of adapted physical activity with an overview of disabilities in physical activity settings. Three one-hour lectures. Prerequisites: EDFI 302 or EDFI 303; and KNS 247 or EDHD 201 or RTD 210. C/F hrs.: 28.

KNS 440. Designing and Directing Exercise Programs (3). Spring. Objectives, transactions, and procedures to conduct professional physical activity programs. Three one-hour lectures. Prerequisites: KNS 387 and KNS 423.

KNS 461. Instructor's Driver Education (3). Summer. First of two courses required leading to certification in the state of Ohio. Provides teacher with introduction to traffic problems in our society and overview of existing driver education programs. Two one-hour lectures and one two-hour lab. Prerequisites: junior standing and driver's license. C/F hrs.:5. Extra fee.

KNS 462. Advanced Instructor's Driver Education (3). Summer. Second of two courses required to qualify a student for state certification in driver education; students learn to organize, administer and teach driver education in Ohio secondary schools. Emphasis on laboratory experience involving Transportation Research Center. Two one-hour lectures, one two-hour lab. Prerequisite: KNS 461. C/F hrs.: 15. Extra fee.

KNS 470. Independent Study in Kinesiology (1-3). Fall, Spring, Summer. An in-depth study project of a topic of particular significance to the student. Project must be approved by project supervisor and Kinesiology Division Chair prior to registration. May be repeated if topic is different. Prerequisite: By permission of instructor.

KNS 472. The Teaching-Learning Process in Middle Childhood-Young Adult Physical Education (3). Fall, Spring. Refining the teaching-learning process in middle childhood-young adult physical education. Two 1-hour lectures/one 2-hour laboratory. Prerequisites: KNS 312 and Admission to PETE Program.

KNS 481. Senior Project (4). Fall, Spring, Summer. Culminating experience in study of human movement. Students work in groups to conceptualize, carry out and report a research project on topic within human movement science. Prerequisites: KNS 400 and SMD 414 or consent of instructor.

KNS 487. Practicum (1-5). Fall, Spring, Summer. Under supervision of KNS Division, School of Human Movement, Sport and Leisure Studies. Petitioning and approval required of each student before registration. Credit hours for each experience approved separately by program area. May be repeated if topic is different. Prerequisite: Approval of appropriate KNS division faculty. Extra fee.

KNS 489. Exercise Specialist Internship (15). Fall, Spring, Summer. Field experience at approved sites. Prerequisites: matriculation into KNS program, satisfactory completion of KNS 387, current CPR and First Aid certifications and approval of field experience application. Extra fee.

KNS 492. Early-Middle Childhood Physical Education Internship (1-16). Fall, Spring. Physical education teaching on full-day basis under supervision in early childhood-middle childhood schools. Prerequisites: full PETE program acceptance; 2.5 GPA; 90 semester hours; PSYC 101; EDFI 302; KNS 432; KNS 472. Extra fee.

KNS 497. Middle Childhood-Young Adult Physical Education Internship (1-16). Fall, Spring. Physical education teaching on full-day basis under supervision in middle childhood-young adult schools and an on-campus seminar. Prerequisites: full PETE program acceptance; 2.5 GPA; 90 semester hours; PSYC 101; EDFI 302; KNS 432; KNS 472. Extra fee.

#### **L&EM Library and Educational Media**

L&EM 301. Basic Educational Media (2). Selection, operation and utilization of common classroom educational media. Lecture; discussion/questioning; problem solving; laboratory; practice/drill. Prerequisite: to follow EDFI 302. C/F hrs.: 16.

L&EM 395. Workshop in Educational Media (1-2). Study, readings and development of materials to meet the needs of practitioners. Topics vary from offering to offering. May be repeated with consent of advisor. C/F hrs.: varies.

L&EM 428. Advanced Utilization of Educational Media (3). Audio-visual materials to motivate, persuade, instruct. Selection, production, use and evaluation. Lecture; discussion/questioning; viewing/listening/answering; problem solving; laboratory. Prerequisite: L&EM 301 or consent of instructor. C/F hrs.: 16.

L&EM 430. Preparation of Instructional Materials (3). Planning, designing and producing instructional materials in terms of stated objectives. Laboratory; practicum; discussion/questioning; problem solving. Prerequisite: L&EM 301, L&EM 428 or consent of instructor. C/F hrs.: 22. Extra fee.

L&EM 434. Individualizing Instruction with Educational Media (3). The application of educational technology (equipment, materials and instructional design techniques) to the conceptual and operational aspects of individualized instruction. Lecture; viewing/listening/answering; problem solving; independent learning/self-instruction.

L&EM 441. Storytelling (3). Techniques and practice of storytelling in libraries, classrooms, etc. Selection of traditional and modern literature to tell and read aloud. Lecture; practice/drill; viewing/listening/answering; role playing. Prerequisite: ENG 342 or consent of instructor. C/F hrs.: 8.

L&EM 490. Problems in Library and Educational Media (1-3). Independent study of selected topics. May be repeated to six hours. Prerequisite: consent of instructor. C/F hrs.: varies.

L&EM 491. Field Work (2). Supervised field work in library, media center or information service approved by department. May be repeated to 4 hours. Practicum. Prerequisite: consent of instructor. C/F hrs.: varies. Graded S/U.

L&EM 497. Student Teaching (1-16). Classroom teaching at the secondary level under supervision on full-day basis. Conferences and seminars supplement program. College/program eligibility requirements must be met. C/F hrs.: 300. May be repeated. Graded S/U. Extra fee.

**LAT Latin**

LAT 101. Elementary Latin I (4). Fall. Cultural approach to beginning language. Development of the four skills: listening, speaking, reading, writing. Four class periods and laboratory practice each week.

LAT 102. Elementary Latin II (4). Spring. LAT 101 continued. Four class periods and laboratory practice each week. Prerequisite: LAT 101 or one year of Latin in high school.

LAT 201. Intermediate Latin I (3). Fall. Grammatical review and reading of ancient Latin texts. Prerequisite: LAT 102 or two years of Latin in high school. Applicable to the humanities and arts and international perspective general education requirements.

LAT 202. Intermediate Latin II (3). Spring. Grammatical review and reading of ancient Latin texts. Prerequisite: LAT 201 or three years of Latin in high school. Applicable to the humanities and arts and international perspective general education requirements.

LAT 351. Latin Prose Composition I (3). Developing increased ability to understand structural peculiarities of classical Latin. Prerequisite: LAT 202.

LAT 352. Latin Prose Composition II (3). Developing increased ability to understand structural peculiarities of classical Latin. Prerequisite: LAT 351.

LAT 361. Latin Literature I (3). Fall. Grammatical review and advanced reading of ancient Latin texts. Prerequisite: LAT 202 or consent of section leader and instructor.

LAT 362. Latin Literature II (3). Spring. Grammatical review and advanced reading of ancient Latin texts. Prerequisite: LAT 202 or consent of section leader and instructor.

LAT 451. Advanced Latin Prose Composition (3). On demand. Development of written skills at an advanced level. Advanced review of Latin grammar and syntax; study of English vs. Latin idioms and of influence of genre on style. Prerequisite: LAT 351.

LAT 470. Readings in Latin Literature (1-3). On Demand. Advanced reading for students wishing to study special period or great author. Prerequisites: LAT 362 or consent of Classical Studies section leader and instructor. May be repeated with different topics up to 6 credits.

**LEGS Legal Studies**

LEGS 200. Perspectives of American Law (3). Fall. Thematic case study of family law, property, privacy, torts, criminal law and other areas which explain social forces that give substance to American law, analysis and reasoning behind court decisions. Prerequisite: 30 hours.

LEGS 301. Legal Environment of Business (3). Fall, Spring, Summer. Fundamentals of the American legal system, contracts, torts, business ethics, social responsibility of business, and selected topics. Credit not allowed for both LEGS 301 and LEGS 401. Prerequisite: junior standing.

LEGS 304. Law for Entrepreneurs (3). Legal issues related to new business ventures including the choice of entity, financing issues, contracts, employment, intellectual property, potential areas of liability, and methods of sale of the business. Prerequisite: BA 204.

LEGS 305. Comparative Legal Philosophy (3). Spring. Legal philosophy and comparative law using legal systems of Western, Communist and developing countries as models; treatment of commercial obligations and constitutional rights within different legal systems.

LEGS 401. Business Law I (4). Fall. Business law including study of contracts, sales, secured transactions, negotiable instruments, bankruptcy and suretyship. No credit for students who have taken LEGS 301. Recommended for accounting students planning on taking the CPA examination.

LEGS 402. Business Law II (4). Spring. Business law including accountant legal liability, agency, partnerships, corporations, securities, property, bailments, trusts and wills, insurance, and professional responsibility. Prerequisite: LEGS 301 or LEGS 401. Recommended for accounting students planning on taking the CPA examination.

LEGS 406. International Business Transactions (3). Spring alternate years. Legal problems faced by individual and corporate business persons when operating within international framework. Methods of control of multinational corporate entities, effect of doing business as national or foreign firm and act of state doctrine relating to expropriation of assets of foreign firm.

LEGS 410. Business, Individuals and the Constitution (3). Fall. An analysis of economic and individual rights of U.S. citizens and businesses and their relationship with state and federal government. Topics of constitutional import will be featured. Prerequisite: junior standing.

LEGS 419. Employment Law I (3). Fall. A discussion of federal and state labor laws regulating (a) labor union and management relationships, (b) plant closings, (c) safe and healthy working environment, (d) employment of immigrants and aliens, (e) privacy (polygraph usage and drug testing) in the work place, (f) employment at will and for term, and (g) wrongful discharge. Prerequisite: junior standing.

LEGS 423. Computer and Technology Law (3). Spring. Developing law concerning computers and technology, including acquisition of computer hardware and software, remedies for failure of a computer system, computer crime, privacy, liability, and intellectual property.

LEGS 425. Health Care Law (3). Fall. Survey of the law governing health care administration. Topics include: medical malpractice, licensing and certification standards, profit and nonprofit corporations, director and officer liability, regulation of health care financing. Prerequisite: junior standing.

LEGS 429. Employment Law II (3). Spring. Discussion of laws focusing on the prohibition of discrimination and harassment on the basis of race, color, national origin, sex, religion, age and handicap, and veterans; and on wage and salary discrimination using equal pay and comparable worth analysis. Prerequisite: junior standing.

LEGS 431. Environmental Law (3). Spring. History and development of modern concepts in environmental law; air, water, land, toxic waste; legal solutions to environmental problems.

LEGS 440. Purchasing and Selling Law (3). Spring. Legal analysis of state and federal laws regulating the purchasing, sale and marketing of goods and services. Regulations involving corporate procurement and marketing functions as well as consumer rights and remedies emphasized. Prerequisite: LEGS 301 or LEGS 401.

LEGS 450. Hospitality Law (3). Spring. Legal regulations, duties, liability and relationships of persons and businesses engaged in the food service, restaurant, hotel/motel and hospitality industries.

LEGS 490. Legal Research and Drafting Seminar (3). Spring. Legal research and drafting seminar that requires use of all types of legal resources. Series of projects to develop competencies in legal research and drafting.

LEGS 491. Studies in Business Law (1-3). On demand. In-depth study of selected areas of law. Offered to individual or to small groups of students on a lecture, seminar, or independent study basis, depending on student need and nature of material. May be repeated to six hours. Prerequisite: consent of chair of department and instructor.

LEGS 495H. Readings for Honors in Business Law (1-3). Fall, Spring, Summer. For student in business administration who wishes to pursue supervised independent program of reading and study. Prerequisite: 3.0 accumulative GPA, or consent of department chair and instructor.

### **LIB University Libraries**

LIB 112. Living in the Information Age (3). Explores the effects of the information explosion on the individual and society. Introduces basic literacy skills, such as locating and evaluating information.

LIB 221. Research in the Electronic Library I (1). Fall, Spring. Study of electronic research and Internet communication. Introduction to the technology that allows electronic access to information sources and the evaluation of these sources. Approved for web delivery.

LIB 222. Research in the Electronic Library II (2). Fundamental concepts of information and electronic access to information resources, search strategies, electronic database features, scholarly communication, societal implications of electronic information.

### **MATH Mathematics and Statistics**

MATH 090. Elementary Algebra (3). Fall, Spring. Fundamental topics of beginning algebra. Intended for students having no previous algebra experience. Credit for this course cannot be applied toward any degree program. Graded A, B, C/No Record.

MATH 095. Intermediate Algebra (3). Fall, Spring, Summer. Number systems, fundamentals of algebra, graphs and equations of straight lines, exponents, polynomial expressions, factoring, rational expressions, roots, the quadratic formula; applications. Credit for this course cannot be applied toward any degree program. Graded A, B, C/No Record.

MATH 112. College Algebra I (3). Fall, Spring, Summer. Graphing, algebra, functions and their graphs, factoring, polynomials, rational expressions, rational exponents, linear and quadratic functions and their applications. Not open to students with a grade of C or higher in MATH 120, MATH 122, MATH 128, or MATH 130. No more than 6 credit hours in MATH 112, MATH 120, and MATH 122 may be counted toward graduation. Prerequisites: Two years of high school algebra, one year of geometry and a satisfactory placement exam score.

MATH 115. Introduction to Statistics (3). Fall, Spring, Summer. Description of data, binomial and normal distributions, estimation and testing hypotheses for means and proportions. Prerequisites: Two years high school algebra, one year of geometry and a satisfactory placement exam score. Approved for web delivery.

MATH 116. Introduction to Statistics II (3). Spring odd-numbered years. MATH 115 continued. Nonparametric methods, linear regression and correlation, analysis of variance. Prerequisite: grade of C or higher in MATH 115 or consent of instructor.

MATH 120. College Algebra (5). Fall, Spring, Summer. Polynomials, factoring, rational exponents, linear and quadratic equations and inequalities, applications; polynomial, exponential and logarithmic functions and their graphs, systems of equations, theory of equations. Not to be taken if credit for MATH 128 or MATH 130 has been received. No more than 6 credit hours in MATH 112, MATH 120, and MATH 122 may be counted toward graduation. Prerequisites: Two years of high school algebra, one year of geometry and a satisfactory placement exam score. Offered at Firelands only.

MATH 122. College Algebra II (3). Fall, Spring, Summer. Review of functions and their graphs, linear and quadratic functions, factoring. Polynomial and rational functions. Review of exponents. Exponential and logarithmic functions and their graphs. Systems of equations, theory of equations. Not open to students with a grade of C or higher in MATH 120, MATH 128, or MATH 130. No more than 6 credit hours in MATH 112, MATH 120, and MATH 122 may be counted toward graduation. Prerequisites: Two years of high school algebra, one year of geometry and a satisfactory placement exam score, or grade of C or higher in MATH 112, or grade of D in MATH 120.

MATH 126. Basic Calculus (5). Fall, Spring, Summer. Differential and integral calculus, multivariate differential calculus and matrix theory; applications. Not open to students with a grade of C or higher in MATH 131 or MATH 135. Prerequisites: a grade of C or higher in MATH 120, MATH 122, MATH 128, or MATH 130; or two years of high school algebra and one of geometry AND a satisfactory placement exam score.

MATH 128. Precalculus Mathematics (5). Fall, Spring, Summer. Basic algebra; inequalities; functions and graphs; logarithmic and exponential functions; trigonometric functions and identities; applications and other topics. Not to be taken if credit for MATH 120, MATH 122, MATH 129, or MATH 130 has been received. Prerequisites: Two years of high school algebra and one of geometry AND a satisfactory placement exam score.

MATH 129. Trigonometry (2). Fall, Spring. Trigonometric functions, graphs, identities, equations, inverse functions, solution of triangles, complex numbers. Intended for students who have good preparation in algebra and geometry but lack knowledge of trigonometry. Not to be taken if credit for MATH 128 or MATH 130 has been received. Prerequisite: C or higher in MATH 120 or MATH 122 or consent of instructor.

MATH 130. Precalculus Mathematics (3). Fall, Spring. Theory of equations, coordinate geometry, exponential, logarithmic and trigonometric functions, applications. Overlaps with content of MATH 128 and MATH 129. Not to be taken if credit for MATH 128 or MATH 129 has been received. Prerequisites: two years of high school algebra, one year of high school geometry and a satisfactory placement exam score.

MATH 131. Calculus and Analytic Geometry (5). Fall, Spring, Summer. Differential and integral calculus including applications. The MATH 131-232-233 sequence is a traditional calculus course for well-prepared students and is prerequisite for all advanced mathematics and statistics courses. Prerequisites: (1) two years of high school algebra, one year of geometry, one-half year of trigonometry, ACT math score of 24 or higher and satisfactory score on department placement test; or (2) grade of C or higher in MATH 128, MATH 129 or MATH 130.

MATH 134. Calculus and Analytic Geometry IA (3). Fall, Spring. Limits, the derivative, differentiation techniques and applications of the derivative. MATH 134 and MATH 135 is a two-semester sequence which includes all the topics from MATH 131. Not open to students with a grade of C or higher in MATH 131 or MATH 126. Prerequisites: same as MATH 131.

MATH 135. Calculus and Analytic Geometry IB (3). Fall, Spring, Summer. The definite integral; the fundamental theorem; indefinite integrals; integration by parts, by substitution and using tables; and applications of definite and indefinite integrals. Prerequisite: grade of C or higher in MATH 134.

MATH 213. Mathematics for Early Childhood Teachers (3). Fall, Spring, Summer. Numeration systems and number sense. Development of the whole numbers, integers, rationals and real numbers. Notions of fractions, decimals, percents, ratio and proportion from an applied perspective. Measurement of geometric figures. Open only to education majors. Prerequisite: satisfactory placement exam score.

MATH 215. Number Systems for Middle School Teachers (3). Fall, Spring. Integers, rationals, irrationals, decimals, real and complex number systems. Properties of numbers. Number theory. Proportional reasoning. Percents. Relations and functions. Algebra. Set theory. Tables and graphs. Open only to education majors. Prerequisite: satisfactory placement exam score.

MATH 216. Geometry for Middle School Teachers (3). Fall, Spring. Informal geometry in two- and three-dimensions. Measurement. Symmetry. Transformational geometry. Tessellations. Congruence and similarity. Coordinate geometry. Constructions. Conic sections. Geometer's Sketchpad. Open only to education majors. Prerequisite: satisfactory placement exam score.

MATH 222. Discrete Mathematics (3). Fall, Spring. Logic, methods of proof, introduction to set theory, relations, functions, algorithms, counting techniques, graph theory, and trees. Credit not given for both MATH 222 and MATH 322. Prerequisite: C or better in MATH 126, MATH 131, or MATH 135.

MATH 232. Calculus and Analytic Geometry II (5). Fall, Spring. MATH 131 continued. Calculus of transcendental functions, techniques of integration, plane analytic geometry, sequences, and series. Prerequisite: grade of C or higher in MATH 131 or MATH 135.

MATH 233. Calculus and Analytic Geometry III (3). Fall, Spring. MATH 232 continued. Vectors and vector-valued functions, analytic geometry in space, partial derivatives, multiple integrals, applications. Prerequisite: grade of C or higher in MATH 232.

MATH 247. Fundamentals of Statistics (3). Fall, Spring. Descriptive statistics. Discrete probability models, sampling distributions, statistical estimation, and testing. Prerequisite: C or better in MATH 126, MATH 131, or MATH 135. Credit not given for both MATH 247 and STAT 211.

MATH 295H. Honors Course in Mathematics (1). Series of lectures by various department members surveying major areas of mathematics. To be taken after completion of MATH 232. Prerequisite: invitation of department.

MATH 313. Elementary Mathematical Logic (3). Fall. Propositional and predicate logic; nature of mathematical proof; applications to mathematics and computer science. Prerequisite: C or better in MATH 131 or MATH 135. Not open to students with credit for CS 313.

MATH 322. Discrete Mathematics (3). Fall, Spring, Summer. Sets, functions, relations, algorithms, induction, elementary combinatorics, graph theory, the

propositional calculus and other topics. A student cannot receive credit for both MATH 222 and MATH 322. MATH 322 is recommended for majors or minors in mathematics. Corequisite: MATH 232 or consent of instructor.

MATH 332. Elementary Linear Algebra (3). Fall, Spring, Summer. Systems of linear equations, vectors, matrices, determinants, linear transformations, vector spaces and applications. Techniques and some proofs. Prerequisite: C or better in MATH 232.

MATH 337. Differential Equations (3). Fall, Spring. Introduction to ordinary differential equations: general equations of low order, higher order linear equations with constant coefficients, series solutions, qualitative theory and systems of differential equations. Prerequisite: C or better in MATH 233.

MATH 339. Fundamental Concepts of Modern Algebra (3). Fall, Spring, Summer odd years. Elementary topics from rings, fields and groups: divisibility properties of the integers; integral domains; construction of the rational, real and complex number systems; polynomial rings. MATH 339 should not be used as an elective for students in the College of Arts and Sciences. Prerequisite: C or better in MATH 322 or consent of instructor.

MATH 341. Principles of Probability and Statistics (3). Fall, Spring, Summer even years. Summary and display of data; basic probability concepts; discrete distributions; continuous distributions; computer-aided probabilistic and statistical modelling of real problems; estimation; tests of statistical hypotheses. Not open to students who have credit for MATH 441. Prerequisite: C or better in MATH 232 or consent of instructor.

MATH 395H. Honors Course in Mathematics (1). A choice of two experiences: (1) a problem-solving seminar, or (2) use of the mathematics library to conduct a search for articles related to a selected topic. Prerequisite: invitation of department.

MATH 400. Topics in Mathematics (3). Selected topics in mathematics not included in existing courses. May be taken twice for credit. Prerequisite: consent of instructor.

MATH 401. Number Theory (3). Spring odd years. Divisibility, prime numbers, linear congruences, Chinese Remainder Theorem, quadratic residues, quadratic reciprocity law, numerical functions, factorization of integers, Fibonacci numbers, elementary diophantine equations and applications. Prerequisite: C or better in MATH 322, MATH 332 or consent of instructor.

MATH 402. Modern Geometry (3). Fall, Spring. Axiomatic development of neutral and Euclidean geometry; introduction to non-Euclidean geometry. Prerequisite: C or better in MATH 339, or in MATH 403 or consent of instructor.

MATH 403. Modern Algebra I (3). Fall. Topics from groups and rings; normal subgroups, homomorphisms, cyclic groups, permutation groups, Lagrange's and Cayley's theorems, factor groups, abelian groups, direct products; integral domains, ideals and factor rings, ring isomorphisms, polynomial rings. Prerequisites: C or better in MATH 233, MATH 322 and MATH 332 or consent of instructor.

MATH 404. Modern Algebra II (3). Spring. Continuation of topics from MATH 403; vector spaces, extensions of fields, finite fields. Prerequisite: C or better in MATH 403 or consent of instructor.

MATH 411. History of Mathematics (3). Spring. History of Mathematics through calculus. Prerequisite or corequisite: MATH 332.

MATH 415. Advanced Mathematical Topics for Middle School Teachers (3). Fall, Spring. History of mathematics, direct and indirect proof, induction, mathematical systems, binary operations, finite geometries, non-Euclidean geometry. Open only to middle school education majors. Prerequisites: C or better in MATH 215 and MATH 216, and in either MATH 222 or MATH 322, and in either MATH 247 or MATH 341, or consent of instructor.

MATH 417. Advanced Mathematics Topics for Early Adulthood Teachers (3). Fall, Spring. Topics from the middle and secondary school mathematics curricula presented from an advanced point of view. Topics include the development of various number systems, the meaning of area, the fundamental theorem of calculus, infinite cardinalities and classical problems of geometry. History of mathematics integrated into course. Prerequisites: C or better in MATH 332 and MATH 339. Corequisite: EDCI 374 or consent of instructor.

MATH 421. Foundations of Mathematics (3). Logic; set theory (including informal discussion of infinite sets and cardinals); axiomatic method (including models, consistency, and independence). Prerequisite: C or better in MATH 339 or MATH 403 or consent of instructor.

MATH 425. Theory of Interest (3). Spring even years. General theories of interest, annuities, yield rates, amortization schedules and sinking funds, bonds and other securities and additional topics in financial analysis. Prerequisite: C or better in MATH 232 or consent of instructor.

MATH 426. Actuarial Mathematics I (3). Fall. Brief introduction to annuities, certain survival distributions and life tables, life insurance, life annuities, net premiums, net premium reserves. Intended to prepare students for actuarial examinations. Prerequisite: C or better in MATH 441.

MATH 427. Actuarial Mathematics II (3). Spring. Multiple life functions; multiple decrement models; valuation theory for pension plans; insurance models including expenses, nonforfeiture benefits and dividends. Prerequisite: C or better in MATH 426.

MATH 432. Linear Algebra with Applications (3). Spring. Matrices and vector spaces, eigenvalues, orthogonal matrices, positive definite matrices, quadratic forms. Applications to differential equations, Markov chains, least squares. Prerequisite: C or better in MATH 332 or consent of instructor.

MATH 434. Advanced Calculus (3). Fall of even years. Advanced topics from the differential and integral calculus of functions of several variables including: curvilinear coordinates, Jacobian matrices, Lagrange multipliers, gradient fields, divergence and curl of a vector field. Prerequisites: C or better in MATH 233 and MATH 332 or consent of instructor.

MATH 437. Qualitative Theory of Differential Equations (3). Existence theorems for linear and nonlinear equations, systems of first order linear equations, nonlinear equations and stability, applications. Prerequisite: C or better in MATH 337.

MATH 439. Boundary Value Problems of Differential Equations (3). Boundary value problems, Sturm-Liouville theory, singular boundary conditions, Fourier series, partial differential equations of mathematical physics, e.g., heat, wave, and Laplace's equation in one and several dimensions. Applications. Prerequisite: C or better in MATH 337.

MATH 441. Probability and Statistics I (3). Fall. Axiomatic probability; conditional probability; random variables/vectors; distribution functions;

expectations; moment-generating functions; special distributions; functions of random variables/vectors; random sampling and sampling distributions; central limit theorem; weak law of large numbers. Prerequisite or corequisite: MATH 233.

MATH 442. Probability and Statistics II (3). Spring. Statistical models; point estimation; interval estimation; testing statistical hypotheses; analysis of discrete data; nonparametric methods. Prerequisite: C or better in MATH 441.

MATH 445. Applied Probability (3). Spring of odd years. Probability models for applications, finite Markov chains, queueing systems, Poisson process, applications to genetics, diffusion, computer systems. Prerequisites: C or better in MATH 332 and MATH 441.

MATH 447. Exploratory Data Analysis (3). Fall odd years. Introduction to modern techniques in data analysis, including stem-and-leafs, box plots, resistant lines, smoothing and median polish. Prerequisite: C or better in MATH 247, MATH 341, or MATH 441 or consent of instructor. Approved for web delivery.

MATH 451. Numerical Analysis (3). Fall. Study of numerical methods for interpolation and approximation, integration and differentiation, solution of non-linear equations and systems of linear and non-linear equations. Prerequisites: C or better in MATH 332 and programming experience. Not open to students with credit for CS 451.

MATH 452. Numerical Analysis (3). Spring. Study of numerical methods for the algebraic eigenvalue problem; solutions of ordinary differential equations; and topics from approximation theory, numerical solution of partial differential equations, optimization techniques and sparse matrix computations. Prerequisites: C or better in MATH 337 and MATH 451 or CS 451. Not open to students with credit for CS 452.

MATH 461. Introduction of Complex Analysis (3). Spring odd years. Complex numbers, complex valued functions, differentiation of complex valued function, analytic functions, power series, integration, contour integrals, residues and poles, conformal mapping, applications. Prerequisites: C or better in MATH 233 and MATH 332 or consent of instructor.

MATH 465. Introduction to Real Analysis I (3). Fall, Spring. Completeness and order axioms; limits of sequences; limits of functions and continuity; open, closed and compact sets; uniform continuity; differentiation and the mean value theorem; the Riemann integral. Prerequisites: C or better in MATH 233, MATH 322 and MATH 332 or consent of instructor.

MATH 466. Introduction to Real Analysis II (3). Spring. The Riemann-Stieltjes integral; sequences of functions; series of real numbers; series of functions; and optional topics selected from transcendental functions, special functions, Fourier series and metric spaces. Prerequisite: C or better in MATH 465 or consent of instructor.

MATH 470. Readings in Mathematics (1-3). Independent study of a topic of particular interest to an advanced student under the direction of a faculty member. May be repeated. Prerequisites: consent of instructor and chair of department.

MATH 489. Internship (1-4). Internship for majors in mathematics or statistics in the cooperative education program. Written report required. May be repeated with permission. Does not apply toward major or minor. Prerequisite: permission of department. Graded S/U.

MATH 495H. Honors Course in Mathematics (1). Directed study in some field of mathematics; preparation and presentation of research topic. To be taken concurrently with two or more hours of MATH 470. Prerequisite: invitation of department.

#### **MATS Materials Science**

MATS 100. Materials in the Service of Society (3). Basic concepts of materials science and the role materials have played in history and in our daily lives. For students not majoring in science. Not counted toward a major in any natural sciences. Two one-hour lectures and one two-hour laboratory. No prerequisites. Applicable to the natural sciences general education requirement.

MATS 401. Survey of Materials Science I (3). Basic concepts of materials science. Crystalline materials, dislocations, elastic properties, polymers, ceramics and corrosion. For students majoring in science or technology. Two one-hour lectures and one three-hour laboratory. Prerequisites: college algebra and introductory course in physics or chemistry.

MATS 402. Survey of Materials Science II (3). Continuation of MATS 401. Electrical, electronic, magnetic and optical properties of materials, with specific focus on modern applications and instrumentation. Surface science and its application in the assessment and development of novel materials. Prerequisite: MATS 401.

MATS 470. Independent Study in Materials Science (1-3). On demand. Research in materials science; projects chosen in consultation with adviser and will include library and laboratory work. May be repeated. Prerequisite: consent of instructor.

#### **MEDT Medical Technology**

MEDT 101. Introduction to Health Professions (1). Survey of health and human service professions and the function of health care personnel within these professions.

MEDT 201. Orientation to the Professions of Medicine/Medical Technology (1). Spring. Professional aspects of medical technology and the allied health fields; introduction to laboratory procedures and topics concerning direct and indirect patient care; tour of hospital facilities; review of current clinical practice issues. Time: one two-hour laboratory/discussion session per week.

MEDT 205. Acquired Immunodeficiency Syndrome (1). Fall, Spring. A comprehensive course on AIDS, discussing epidemiology, biology, socio-demography, safe sex, ethics, public policy, test sites and support services. Bowling Green faculty, as well as community experts, will be brought in as instructors. Course is informative and practical. Graded S/U. Approved for web delivery.

MEDT 301. Medical Terminology (2). Fall, Spring. Vocabulary and terms used by medical personnel; prefixes, suffixes, word roots and their combining forms, usage and spelling; specialized terms by body systems. Prerequisite: sophomore standing. Approved for web delivery.

MEDT 310. Forensic Laboratory Testing (3). Introduction to general forensic testing as employed in clinical medicine, criminal justice, etc. Theory & demonstration include specimen collection, preservation; DNA testing; species identification, drug testing, court application, case studies. Explained in format geared to non-science majors. Lecture 2hr & 1hr discussion/demo/week. Extra fee.

MEDT 370. HIV/AIDS: Scientific and Medical Aspects (2). Review of current scientific literature regarding HIV infection and pathobiology with emphasis on immunological aspects of infection and diseases associated with AIDS.

MEDT 380. AIDS Education in the Schools (2). Review of current legislation, policies, procedures, educational materials and safety regarding AIDS/HIV in the classroom with emphasis on responsibilities of teachers, administrators, school board.

MEDT 401. Issues in Health Care (3). Capstone course examining current issues and trends affecting the health care delivery system and confronting health providers, patients and society. Interdisciplinary topics such as health care economics, quality of care, law and ethics and governmental policies will be emphasized. Prerequisite: Senior in AHS or junior in Medical Technology Program or consent of instructor. Approved for web delivery.

MEDT 402. Orientation and Management (1). Orientation to hospital departments and laboratory procedures. Laboratory supervision and management. Prerequisite: admission to hospital-based medical technology program. Duration of this course may vary slightly from hospital to hospital.

MEDT 403. Applied Clinical Microbiology (9). Fourteen weeks of supervised practical experience in a clinical microbiology lab identifying pathogenic bacteria, fungi, and parasites. Prerequisite: admission to hospital-based medical technology program. Duration of this course may vary slightly from hospital to hospital.

MEDT 404. Clinical Serology (2). Three weeks of supervised experience in clinical applications of cellular and humoral immunity as diagnostic procedures. Prerequisite: admission to hospital-based medical technology program. Duration of this course may vary slightly from hospital to hospital.

MEDT 405. Applied Clinical Hematology (5). Eight weeks of supervised practical experience in hematologic methods, coagulation and blood cell morphology in a hospital laboratory setting. Prerequisite: admission to hospital-based medical technology program. Duration of this course may vary slightly from hospital to hospital.

MEDT 406. Applied Clinical Chemistry (11). Seventeen weeks of supervised practical experience in manual and automated methods in clinical chemistry, toxicology and endocrinology in a hospital setting. Prerequisites: admission to hospital-based medical technology program. Duration of this course may vary slightly from hospital to hospital.

MEDT 407. Blood Bank (5). Seven weeks of supervised practical experience in blood group serology with emphasis on preparation and testing of blood for transfusion in a hospital laboratory setting. Prerequisite: admission to hospital-based medical technology program. Duration of this course may vary slightly from hospital to hospital.

MEDT 410. Applied Microbiology Practicum (10). One semester of full time training in the areas of medical or industrial microbiology, research, or public health learning procedures, policies, methods and techniques used in the field. Prerequisites: completion of major core in applied microbiology and permission of instructor.

MEDT 411. Diagnostic Immunology I (3). Theory of clinical immunology related to humoral and cellular immunity in health and disease states. Prerequisite: admission to university-based medical technology program or permission of instructor.

MEDT 412. Diagnostic Immunology I Laboratory (1). Laboratory application and testing related to humoral and cellular immunity in disease states. Prerequisite: admission to university-based medical technology program or permission of instructor. Extra fee.

MEDT 413. Immunohematology I (4). Theory of human blood groups, compatibility testing, detection and identification of antibodies, blood collection/storage, management of transfusion service. Prerequisites: admission to university-based medical technology program or permission of instructor.

MEDT 414. Immunohematology I Laboratory (2). Laboratory application and testing of human blood groups, compatibility testing, detection and identification of antibodies. Prerequisite: admission to university-based medical technology program or permission of instructor. Extra fee.

MEDT 415. Immunohematology II (3). MEDT 413 and MEDT 414 continued; emphasis on a clinical application of current practice in Blood Banking. Prerequisites: MEDT 413 and MEDT 414 with a grade of C or better. Duration of this course may vary slightly from hospital to hospital. Extra fee.

MEDT 416. Clinical Immunology II (2). Clinical laboratory experience regarding testing and application of diagnostic immunology (MEDT 411 and MEDT 412). Prerequisites: grade of C or higher in MEDT 411 and MEDT 412. Duration of this course may vary slightly from hospital to hospital. Extra fee.

MEDT 421. Hematology I (3). Origin, regulation, morphology and function of blood cells in health and disease. Congenital and acquired hematologic aberrations. Prerequisite: admission to university-based medical technology program or permission of instructor.

MEDT 422. Hematology Lab I (2). Diagnostic laboratory procedures applied to qualitative and quantitative evaluation of blood cells. Prerequisite: admission to university-based medical technology program or permission of instructor. Extra fee.

MEDT 423. Hematology II (2). Mechanism of hemostasis in health and hemorrhagic and thrombotic disease. Blood cell morphology. Lecture and laboratory. Prerequisite: admission to university-based technology program or permission of instructor. Extra fee.

MEDT 424. Hematology III (3). Continuation of Phase I hematology sequence with emphasis on clinical application and hospital laboratory instrumentation. Full-time clinical instruction and practice. Prerequisites: grade of C or better in MEDT 421, MEDT 422 and MEDT 423. Duration of this course may vary slightly from hospital to hospital. Extra fee.

MEDT 431. Clinical Bacteriology I (3). Isolation identification and detailed description of clinically important bacteria. Microbial etiology of disease; methods of prevention and control. Prerequisites: admission to university-based medical technology program or permission of instructor.

MEDT 432. Clinical Bacteriology I Laboratory (2). Diagnostic microbiology laboratory procedures. Methods of isolation and identification of clinically significant bacteria. Prerequisite: admission to university-based medical technology program or permission of instructor. Extra fee.

MEDT 433. Clinical Bacteriology II (4). MEDT 431 and MEDT 432 continued; emphasis on clinical application and identification of clinically significant bacteria. Full-time clinical instruction and practice. Prerequisites: grade of C

or better in MEDT 431, MEDT 432, and MEDT 436. Duration of this course may vary slightly from hospital to hospital. Extra fee.

MEDT 434. Clinical Parasitology (3). Parasitic diseases of man; methods of detection, isolation and identification of clinically significant human parasites. Lecture and lab. Prerequisite: BIOL 313 or equivalent or permission of instructor. Extra fee.

MEDT 435. Clinical Mycology (2). Clinically significant fungi; methods of detection, isolation and identification. Lecture and lab. Prerequisite: BIOL 313 or equivalent or permission of instructor. Extra fee.

MEDT 436. Clinical Virology (1). Study of clinically important human viruses, emphasizing structure, classification and pathogenicity. Methods of isolation, identification, prevention and vaccination will also be discussed. Prerequisite: BIOL 313 or equivalent. Corequisites: MEDT 431 and MEDT 432 or permission of instructor.

MEDT 441. Clinical Chemistry I (4). Theoretical principles of analysis of chemical constituents of blood and body fluids in normal and disease states. Prerequisite: admission to university-based medical technology program or permission of instructor.

MEDT 442. Clinical Chemistry I Laboratory (2). Methods, instrumentation and techniques of clinical chemistry through experiments, problems and demonstrations. Prerequisite: admission to university-based medical technology program or permission of instructor. Extra fee.

MEDT 443. Clinical Chemistry II (5). Continuation of MEDT 441 and MEDT 442; emphasis on clinical application. Prerequisites: grade of C or better in MEDT 441, MEDT 442, MEDT 451. Duration of this course may vary slightly from hospital to hospital. Extra fee.

MEDT 450. Emerging Infectious Diseases (3). Fall. Provides an overview of new and reemerging viral, bacterial and parasitic infections facing the Nation in the 21st Century. Emphasizes the clinical manifestations of these infectious diseases, global changes that contribute to emerging diseases, prevention strategies and public health's response to epidemics.

MEDT 451. Analysis of Body Fluids (2). Physiology of urinary system and related diseases. Methods of detection of chemical and cellular elements of urine, cerebrospinal fluid, amniotic fluid, and other body fluids. Lecture and laboratory. Prerequisite: admission to university-based medical technology program or permission of instructor. Extra fee.

MEDT 465. Laboratory Management and Education (1). Laboratory supervision and management; principles of education and laboratory instruction; seminars or case histories on selected topics of clinical interest. Prerequisite: completion of pre-clinical MEDT courses or permission of instructor. Duration of this course may vary slightly from hospital to hospital.

MEDT 470. Research and Special Topics (1-3). Research techniques, literature search, experimental design, critical reading. Paper required on selected problem. Prerequisite: permission of instructor.

MEDT 480. Introduction to Clinical Research (1-3). Research techniques, literature search, experimental design. Term paper required. For university-based students during clinical training at clinical site. Prerequisites: completion of pre-clinical courses. Duration of this course may vary slightly from hospital to hospital. Extra fee.

### **MFG Manufacturing Technology**

MFG 112. Introduction to Manufacturing Processes and Systems (3). Fall, Spring. Technology of the manufacturing enterprise. Production, materials, methods, manufacturing planning, organizing, and controlling. One and one-half hour lecture and one three-hour laboratory per week.

MFG 126. Basic Metrology (1). Linear measurement instruments, gauge blocks, dial indicators, angular measurement, calibration. One hour lecture. Offered at Firelands only.

MFG 220. Metallic Materials and Processes (3). Spring and on demand. A survey of metals and their hot and cold processing practices. Laboratory applications and techniques are studied. One and one-half hour of lecture and one three-hour laboratory per week. Prerequisites: MFG 112, MATH 128. Extra fee.

MFG 225. Plastic Materials and Processes (3). Identification, properties, characteristics and selection of plastic materials. Set-up and operation of plastic processing equipment. Two hours lecture and two hours laboratory. Prerequisite: MFG 112 or permission by instructor. Offered at Firelands only.

MFG 227. Quality Assurance (3). Benchmarking, advanced product quality planning, design of experiments, SPC control charting and capability studies, pre-control charting, and measurement systems analysis. Two one-hour lectures and one two-hour laboratory. Prerequisite: MFG 112 and STAT 200, or permission of instructor. Offered at Firelands only.

MFG 235. Properties and Testing of Engineering Materials (3). Mechanical properties and failure modes of engineering materials. Destructive and nondestructive testing of these materials. One two-hour lecture and one two-hour laboratory per week. Prerequisites: MATH 126 and PHYS 201 or consent of instructor. Extra fee.

MFG 240. Computer Numerical Control (CNC) Programming and Machining (3). Fall and on demand. Cartesian coordinate machine programming for milling and turning. CNC machining setup, practice, and introduction to Computer-Aided Manufacturing (CAM). One two-hour lecture and one two-hour laboratory per week. Prerequisite: MFG 220. Extra fee.

MFG 290. Problems in Manufacturing Technology (1-3). For advanced students wanting to conduct intensive study of selected problems in manufacturing technology. May be repeated up to 6 hours if topics vary. Prerequisites: sophomore standing and consent of instructor. Offered at Firelands only.

MFG 322. Non-Metallic Materials and Processes I (3). Spring. Wood, reconstructed wood and ceramic materials, processing methods and product applications. One two-hour lecture and one two-hour laboratory. Extra fee.

MFG 329. Plastics and Composite Materials and Processes (3). Fall, Summer even years. Identification, properties, characteristics and selection of plastics and composite materials. Set-up and operation of primary and secondary plastics processing equipment. One two-hour lecture and one two-hour laboratory per week. Prerequisite: MFG 112. Extra fee.

MFG 350. Genealogy of Lean (3). This introductory course chronicles and defines the history of manufacturing from "craft" to "mass" to "lean." An analysis of the core values of Henry Ford, Taiichi Ohno, Shigeo Shingo, and W. Edwards Deming will be reviewed focusing on how they influenced the Toyota Production System. Prerequisite: junior standing or permission of instructor. Approved for web delivery.

MFG 400. Materials, Properties, and Heat Treatment (3). Fall. Materials, mechanical properties and testing, phase diagrams, heat treatment, and metallography of steels. Two-hour lecture and two-hour laboratory. Prerequisite: MFG 220. Extra fee.

MFG 424. Computer-Integrated Manufacturing Systems (3). Fall even years. Computer integration tools and techniques in manufacturing such as teaming, group technology, database management. Prerequisites: MFG 220, MFG 240.

MFG 428. Automation and Flexible Manufacturing Systems (3). Spring even years. Automation in manufacturing, including fixed automation, flexible automation based on Computer Numerical Control(CNC) technology, and integration of these technologies into FMS. One two-hour lecture and one two-hour laboratory. Prerequisites: MFG 220 and MFG 240. Extra fee.

MFG 430. Concurrent Manufacturing Technology (3). Spring, and on demand. Contemporary manufacturing processes in which the process of producing a newly designed product is expedited on Computer-Aided Design/Computer Aided Manufacturing (CAD/CAM). Four hours of lecture and laboratory per week. Prerequisites: MFG 112, MFG 220, and MFG 340, DESN 131 and DESN 204. Extra fee.

MFG 438. Metallurgy, Metallography and Heat Treating (3). Fall, Summer of even numbered years. Metallurgical structure and its effects on properties of ferrous and nonferrous metals. Altering metal properties and performance through heat treating. Preparation of metals and examination by use of metallography. One two-hour lecture and one-two hour laboratory per week. Prerequisites: MFG 220, MFG 235. Extra fee.

MFG 450. Foundations of Lean Manufacturing (3). This course will teach the individual tools and techniques which are the foundation of continuous improvement in the manufacturing environment. The scientific application of each tool will be discussed including the seven types of waste (Muda), 5's, Kanban, Kaizen, SMED, Safety and Ergonomics. Prerequisite: MFG 350 or permission of instructor. Approved for web delivery.

MFG 451. Time Based Management or Continuous Flow (3). This course will focus on time and elements of motion. The course will teach time studies and how to create value added instructions to change movement or motion into work. A review of work measurement, machine controlled operations, plant layout, lead time, cellular manufacturing, balancing and leveling will be taught. Prerequisite: MFG 450 or permission of instructor. Approved for web delivery.

MFG 490. Problems in Manufacturing Technology (1-5). For advanced students wanting to conduct intensive study of selected problems in manufacturing technology. May be repeated. Prerequisite: senior standing and consent of department. Graded S/U.

#### **MGMT Management**

MGMT 300. Introduction to Production and Operations Management (3). Fall, Spring, Summer. Fundamentals of management of operations of firms; design of production systems, operation, coordination and control of production activity; major analytical tools for management. Prerequisite: STAT 212 or equivalent.

MGMT 304. Entrepreneurial Leadership and Teams (3). Theoretical foundation and application of leadership and interpersonal skills for entrepreneurial ventures. Topics include leading, motivating, working in and with teams, coaching, mentoring, delegating, empowering others, and goal setting. Prerequisite: BA 204.

MGMT 305. Principles of Organization and Management (3). Fall, Spring, Summer. Fundamentals of organization theory; objectives, policies, decision-making, authority, management development, leadership, communication, motivation and effective human relations; management principles. No credit allowed toward BSBA degree. Prerequisite: junior standing or permission of department.

MGMT 330. Purchasing and Supplier Management (3). Fall, Spring. Overview of the purchasing function and the steps of the purchasing cycle. The purchasing organization, outsourcing decisions, supplier selection and evaluation, supplier quality, certification, global sourcing, capital equipment purchasing, and socially responsible purchasing. Prerequisite: MGMT 300 (concurrent registration permitted).

MGMT 360. Organizational Theory and Behavior (3). Fall, Spring, Summer. Microrelationships in organizations; historical perspective, changing nature of organizations, and individual and overall group behavior. Specific topics include motivation, decision-making, leadership, group dynamics and organization structure. Prerequisite: STAT 211 or equivalent.

MGMT 361. Human Resource Management (3). Fall, Spring, Summer. Survey of HRM activities including job analysis, performance appraisal, job evaluation, wage surveys, compensation and benefits, labor relations, health and safety, and relevant government regulations. Prerequisite: MGMT 305 or MGMT 360.

MGMT 430. Purchasing and Price/Cost Analysis (3). Fall, Spring. Comprehensive examination of cost management issues within purchasing function. Topics include price/cost analysis, total cost of ownership, life cycle costing, cost reduction techniques, purchase/product specifications. Special issues relating to terms and conditions of contracts in purchasing and government and institutional purchasing also covered. Prerequisites: MGMT 300 and MGMT 330 (concurrent registration in MGMT 330 permitted).

MGMT 439. Purchasing and Materials Management Problems (3). Fall, Spring. Capstone course integrating principles from other required courses in the area of purchasing and materials management; lectures, case discussions, simulations and research projects used for instructional purposes. Prerequisites: MGMT 330 and MGMT 430. Admission to purchasing specialization required.

MGMT 441. Quality Management and Process Improvement (3). Fall, Spring. The importance of quality management and process improvement for manufacturing firms in today's highly competitive domestic and global markets. Major topics include: fundamentals of process design, process selection, theory of constraints, quality management, and statistical quality control. Prerequisite: MGMT 300.

MGMT 442. Supply Chain Management (3). Fall, Spring. Planning and execution of acquisition, conversion and movement of materials across the supply chain. Topics include supply chain management concept, master scheduling, demand management, forecasting, order processing, inventory management, transportation, warehousing, and supply chain information system. Prerequisite: MGMT 300 or equivalent.

MGMT 445. Production Planning and Control (3). Fall, Spring. Production planning and control processes including: intermediate range scheduling such as aggregate planning and master scheduling; short range production scheduling such as job shop scheduling; capacity planning and control such as rough-cut capacity planning and capacity requirements planning; material planning and control using material requirements planning; project scheduling with resource constraints. Prerequisite: MGMT 300.

MGMT 449. Problems in Production and Operations Management (3). Fall, Spring. Advanced topics such as just-in-time/lean manufacturing, enterprise resource planning and integration of principles, theories and techniques gained from previous courses in the POM area for the effective management of both manufacturing and service organizations. Prerequisites: MGMT 445 and either MGMT 441 or MGMT 442. Admission to production specialization required.

MGMT 454. Managing the Employment Process (3). Fall. Emphasis on employment-related activities including human resource planning, recruitment, selection, organizational entry, career development and training. Prerequisite: MGMT 305 or MGMT 360.

MGMT 455. Managing the Compensation Process (3). Current practices and recommended methods in the establishment of base pay, incentive pay, and employee benefits and services. Government regulations concerning pay, job analysis and job evaluation, wage surveys, pay structure design, pay for performance, benefits and services, pay administration and the issue of comparable worth. Prerequisite: MGMT 361.

MGMT 456. Managing Productivity, Employee Involvement and Reward Systems (3). Spring. Focus on productivity improvement strategies, employee involvement, work redesign and reward and incentive systems. Prerequisite: MGMT 305 or MGMT 360.

MGMT 463. Organization Theory, Analysis and Design (3). Organizational variables and processes which influence the overall design and functioning of organizations. Investigates traditional and contemporary theories of organization such as systems theory, social construction, political models, information processing and population ecology. Prerequisite: MGMT 305 or MGMT 360.

MGMT 465. Managing Change in Organizations (3). Fall. Examination of topics related to organization development and change including diagnosing the need for change, overcoming resistance to change, implementing and evaluating interventions, and confronting the ethical dilemmas of change. Prerequisite: MGMT 305 or MGMT 360.

MGMT 468. Organization Development Field Experience (3). An integrative and applied course designed to allow students to develop and apply skills in diagnosing organizations, designing interventions, and carrying out change in organizations. Prerequisite: MGMT 465.

MGMT 489. Internship (1-3). Following experience in approved business position, student participates in seminar to formally evaluate that experience. Must be arranged in advance and approved by department chair. Work experience must be completed within one year of acceptance into specialization. No credit for students with credit from any similar program in College of Business Administration. Graded S/U.

MGMT 491. Studies in Management (1-3). On demand. Selected areas not covered by existing courses but which are developing rapidly as important parts of discipline. Offered to individual on lecture basis or in seminar, depending on student need and course content. May be repeated to six hours.

MGMT 495H. Readings for Honors in Management (1-3). Fall, Spring, Summer. For superior student who desires individual reading program to broaden knowledge of management literature on semi-independent basis. Prerequisite: academic standing in upper 20 percent of class.

### **MIS Management Information Systems**

MIS 200. Introduction to Management Information Systems (3). Fall, Spring, Summer. Principles of computer systems, role of information systems in organizations; introduction to microcomputer operating systems, spreadsheet and database software. Credit allowed for at most one of the following courses: MIS 200, CS 100. Extra fee.

MIS 360. Introduction to Systems Concepts (3). Fall, Spring, Summer. Introduction to the general concept of a system and to systems theory, the system life-cycle and system development processes; emphasis on application to business-oriented information systems. Attendance at professional meetings may be required. Prerequisite: MIS 200 or CS 100 or approval of department.

MIS 402. Windows Application Design (3). Design of business applications in Windows environment. Focus on developing database front-ends and integration of spreadsheets, databases, and other productivity applications. Visual programming languages such as Visual Basic used as development environment. Prerequisites: MIS 200 and either CS 101 or CS 261.

MIS 405. Electronic Commerce (3). Fall, Spring. Management strategies, challenges and issues in the domain of electronic commerce. Impact on global competition and society. Role of Internet-based technologies in accelerating electronic commerce. New business opportunities and skills needed to exploit them. Prerequisite: MIS 200 or CS 100 or approval of department. Extra fee.

MIS 412. Decision Support Systems/Expert Systems (3). Provides the student with skills necessary to conceptualize, design, and implement decision support systems (DSS) and expert systems (ES) in organizations; includes the use of a variety of software in creating DSS and ES. Prerequisites: MIS 360, and CS 261 or CS 201 or CS 205 or CS 360.

MIS 417. Microcomputer Hardware and Software Management (3). Management of the microcomputer environment. Issues in distributed computing systems. Emphasis on microcomputer architecture and operating systems. Understanding of components in microcomputer systems and their implications. Prerequisite: MIS 200 or approval of department.

MIS 421. Business Data Communication and Distributed Processing (3). Fall, Spring. Basic concepts, security, and design of business data communication systems and distributed processing of business information systems. Prerequisite: MIS 360 or ACCT 460.

MIS 433. Artificial Intelligence in Business Decision Making (3). Survey of the area of A.I. with an emphasis on business decision making. Students will do a project utilizing an A.I. language or Shell. Prerequisites: MIS 360, and CS 261 or CS 201 or CS 205 or CS 360.

MIS 470. Database Management (3). Fall, Spring. Logical database design and effective implementation, including hierarchical, network and relational models. Prerequisites: MIS 360 or ACCT 460, and CS 261 or CS 201 or CS 205 or CS 360.

MIS 471. Systems Analysis and Design (3). Fall, Spring. Concepts and methods of systems analysis and design; includes a project involving design of a computer-based information system. Prerequisite: MIS 470.

MIS 479. Information Resource Management (3). Managing information as a corporate resource. Involves management of the various elements of the information systems areas as well as strategic planning of information resources using state-of-the-art technology in a dynamic field. Prerequisites: MIS 471,

FIN 300, MKT 300, MGMT 360 and MIS 421 (concurrent registration in MIS 421 permitted).

MIS 489. Internship Seminar (1-3). To be completed at first opportunity following suitable internship experience. Work experience to be preceded by at least 70 hours of academic credit. No credit for students with other internship credit in College of Business Administration. No credit toward the MIS specialization within the BSBA program or the MIS minor. Graded S/U.

MIS 491. Studies in Management Information Systems (1-3). On demand. Selected areas or contemporary problems. May be repeated to six hours. May be offered individually as well as in classes, depending upon student needs and nature of material. Prerequisite: approval of department.

### **MKT Marketing**

MKT 300. Principles of Marketing (3). Fall, Spring, Summer. Introduction to marketing activities and decisions. Topics include: product, price, promotion, distribution activities; market segmentation; behavior of consumers and business customers; marketing research; environmental analysis; services, nonprofit, international marketing. Prerequisite: ECON 200 or higher. Extra fee.

MKT 302. Consumer Behavior (3). Fall, Spring. Pertinent theoretical and empirical findings about consumer markets and behavior, implications for marketing practice. Topics include: processes of decision making and evaluation; personal, social, environmental, and marketing influences; attitude formation and change; information processing and learning; segmentation of markets. Prerequisite: C or better in MKT 300.

MKT 320. Marketing Research (3). Fall, Spring. Research as a process and source of information for marketing decision making. Examines research methods and techniques used in the collection, analysis, and interpretation of primary and secondary data for consumer and business marketing. Prerequisites: STAT 212 or equivalent, and C or better in MKT 300.

MKT 350. Business-to-Business Marketing (3). Fall, Spring. Theory and practice of marketing to organizations (business, institutions, government). Topics include organizational buying and behavior, market forecasting, segmentation and competitive assessment, business marketing partnerships, distribution channel management and products, services, pricing, promotions for organizational markets. Prerequisite: C or better in MKT 300.

MKT 400. Topics in Marketing (1-3). On demand. Selected areas not covered in depth by existing courses but which are developing as an important part of marketing. Offered on lecture basis or in seminar, depending on student demand and course content. Typical topics, which may vary from semester to semester, could include nonprofit marketing; demand analysis and forecasting; distribution systems; or pricing strategies. May be repeated to 6 hours. Prerequisites: depending upon course content, prerequisites in addition to C or better in MKT 300 may be required.

MKT 405. Services Marketing (3). Fall, Spring. Conceptual and analytic framework for the application of marketing principles to the service sector of the economy. Development and understanding of the impact of unique service characteristics on the development of marketing strategies. Prerequisite: C or better in MKT 300.

MKT 408. Introduction to Promotion (3). Fall, Spring. An exploration of the role of promotion in the marketing process. Topics include: buyer behavior, information processing, communications, and the promotional elements. Strategy implications are stressed throughout the course. Non-Marketing students only.

Credit not applicable to specialization in Marketing in BSBA. Credit not allowed for both MKT 408 and MKT 410. Prerequisite: C or better in MKT 300.

MKT 410. Marketing Communication and Promotion (3). Fall, Spring. Role of promotion in marketing process. Applications of consumer behavior theory to promotional mix (advertising, personal selling, sales promotion, public relations) and other marketing communications. Topics include integrated marketing communications, communication theory, promotional planning, creation, execution and evaluation. Prerequisite: C or better in MKT 302.

MKT 412. Advertising Management (3). Fall or Spring. Role of advertising management in the marketing mix and advertising as component of integrated marketing communications. Topics include objective setting, market positioning, campaign strategy and tactics (creative and media), campaign effectiveness. Term project usually used. Prerequisite: C or better in MKT 408 or MKT 410.

MKT 415. Managing the Service Experience (3). Fall, Spring. Explores the unique problems and issues that occur within service firms as they attempt to develop effective service marketing strategies and manage the service encounter. Topics include: internal marketing; service provider roles; service failure and recovery strategies; management of service quality; server provider management. Prerequisite: C or better in both MKT 300 and MKT 405.

MKT 416. Servicescape Design (3). Fall, Spring. Explores the unique managerial problems and decisions that occur within a service encounter due to the interaction of people (provider and client) and their physical environment. Covers four basic areas of the elements of physical evidence: exterior, interior, support materials and people. Prerequisite: C or better in MKT 300. Recommended: MKT 405.

MKT 421. Advanced Marketing Research (3). On demand. Application of research methods and techniques to solve marketing problems. Research design, implementation, interpretation of results, reporting. Topics include: advanced study of sampling; questionnaire design; data collection and retrieval; data analysis; presentation of results. Prerequisites: STAT 212, C or better in MKT 300 and MKT 320.

MKT 425. Creativity in Marketing (3). Fall, Spring. An exploration of the role of creative expression in marketing thought and practice. Topics include: individual and group creativity, the creative problem-solving process, creativity assessment, idea generation theory, the application of problem-solving frameworks to the development of creative marketing strategy. Prerequisite: C or better in MKT 300.

MKT 430. Retail Management (3). Fall or Spring. Retailing is the study of companies involved in and the process of selling products to final consumer. Topics include: store location and trade area analysis; retail financial control; inventory planning; buying; merchandising; store layout; retail promotion. Prerequisite: C or better in MKT 300. Recommended: ACCT 200 or ACCT 221.

MKT 435. Marketing on the Internet (3). Fall, Spring. Application of basic principles associated with marketing goods and services on the Internet. Emphasis on the dynamic way in which the Internet impacts all elements of an organization's marketing strategy, including advertising, selling, distribution, pricing, and the product itself. Prerequisite: C or better in MKT 300.

MKT 440. Professional Selling (3). Fall, Spring. The selling process is studied from a theory, techniques and application perspective. Topics include: behavioral aspects of sales; prospecting; qualifying; approaching; presenting;

handling objections; closing; follow-up; and other special interest topics. Sales presentation is required for all students. Prerequisite: C or better in MKT 300.

MKT 442. Sales Management (3). Fall or Spring. Theory, principles and practices of selling and sales force administration for manufacturing and wholesaling enterprises. Topics include: recruiting; training; compensation; sales force size and design; selling techniques; performance appraisal. Prerequisite: C or better in MKT 300.

MKT 445. Product Planning (3). On demand. Issues and concepts related to planning, development, management and analysis of products. Emphasis on role of new products in corporate strategy; process, organization, research and oversight of new product development and management of existing products. Prerequisite: C or better in MKT 300.

MKT 455. International Marketing (3). Fall or Spring. Theory and practice of marketing across national borders, as well as marketing within different foreign environments, highlighting the similarities and differences among various countries and regions. Special attention to the marketing structure and strategies of global corporations. Prerequisite: C or better in MKT 300.

MKT 460. Marketing Management (3). Fall, Spring. Capstone course in planning, integration, management of marketing functions. Customer analysis and segmentation; competitive analysis; design and management of pricing, product, distribution, promotion activities; tactical and strategic marketing decisions. Prerequisites: C or better in each of MKT 302, MKT 320, MKT 350 and admission to the BSBA program.

MKT 489. Marketing Internship (1-3). Fall, Spring. Work in approved business position; credit determined by quality and extent of work experience. Not open to freshmen and sophomores. No credit for students with credit for ACCT 489, BA 489, MGMT 489 or MIS 489. Prerequisites: six hours of MKT coursework and permission of department. Graded S/U.

MKT 491. Special Studies in Marketing (1-3). Fall, Spring. Independent or small group study of selected topics not covered by existing courses but which are currently (or becoming) an important part of marketing. Prerequisite: permission of department chair. Graded S/U.

MKT 495. Reading for Honors in Marketing (1-3). Fall, Spring. For superior student who wishes individual reading program or independent research experience with guidance from an appropriate adviser. Prerequisite: open only to marketing student in BSBA with an overall GPA of 3.0 or better at time of registration. Letter grade only.

#### **MSL Military Science and Leadership**

MSL 100. Lifetime Leadership Skills (2). Skills needed to be successful in wide range of environments to include academic, corporate and military. Subjects include but not limited to time management, memory comprehension, effective and efficient reading and effective note taking. Extensive leadership studies of both corporate and military settings focuses on interpersonal skills, professional ethics and officership. No military obligation or prerequisites. Extra fee.

MSL 101. ROTC and the National Defense Organization (2). Background, programs, benefits and objectives of Army ROTC. Organization and functions of national defense establishment, with emphasis on the role of the U.S. Army. Extensive discussion of the role and responsibility of the military officer. Presentation

of detailed information concerning career opportunities as an Army officer. Extra fee.

MSL 201. Leadership/Officership (2). Theoretical and practical leadership instruction. Examination of several aspects of communication and leadership concepts such as written and oral communication, effective listening, assertiveness, personality, adult development, motivation, and organizational culture and change. Emphasis on developing intellectual curiosity and clarifying practical applications. No military obligation. Prerequisite: MSL 101 or permission of department. Extra fee.

MSL 202. Military Tactics (2). Army tactics, principles of engagement and usage of military maps. Simulation exercises and war games will be utilized in class highlighting military tactics. No military obligation. Prerequisite: MSL 201 or permission of department. Extra fee.

MSL 301. Professionalism/Leadership (3). Professionalism and leadership required of the U.S. Army Officer; application of leadership principles and styles through case studies and role-playing exercises with emphasis on military situations. Participation in leadership labs, physical training program and field training exercises required. Prerequisites: department permission and completion of one of the following: ROTC basic course at BGSU; ROTC Basic Camp at Fort Knox, KY; prior active duty service; Army Reserve or Army National Guard basic training. Extra fee.

MSL 302. Small Unit Operations (3). Organization and employment of basic military teams. Squad- and platoon-level tactical operations. Progressive leadership development through application of tactical principles. Participation in leadership labs, physical training program and field training exercises required. Prerequisite: department permission. Extra fee.

MSL 401. Unit Management and Officer Development (3). Concepts and fundamentals of Army unit administration, supply and material readiness. Professional officership techniques and military ethics. Management at the small unit level. Organizing, planning and participating in field training exercises, participation in physical training and leadership labs. Prerequisite: department permission. Extra fee.

MSL 402. Military Law and Leadership (3). Organization and concepts of the U.S. Army judicial system including court martial, non-judicial and punitive actions. Fundamentals of the military decision making process. Discussions of various administrative details pertinent to newly commissioned lieutenants. Participation in field training exercises, physical training and leadership labs. Prerequisite: department permission. Extra fee.

MSL 470. Studies in Military Science (1-3). On demand. Detailed study of selected military subjects. Offered on lecture basis in seminar or independent study depending on students' needs and nature of material. May be repeated to six hours. Prerequisite: consent of instructor. Extra fee.

#### **MUCT Musicology/Composition/Theory**

MUCT 101. Exploring Music (2). Fall, Spring, Summer. Focus on three types of contexts important to appreciating music: the composer, the place and the time. Not open to bachelor of music degree students. Applicable to the humanities and arts general education requirement. Approved for web delivery.

MUCT 110. Elements of Music (3). Spring. Musical literacy in scales, intervals and triads in two clefs, as demonstrated by singing, hearing, reading and writing. Not open to bachelor of music degree students.

MUCT 113. Basic Musicianship I (2). Fall, Summer. Thorough study of music fundamentals; basic ear training and sight singing; introduction to diatonic harmony and melodic organization, with examples from a variety of music literature. Open only to music majors and minors with low scores on placement exam.

MUCT 114. Basic Musicianship II (2). Spring. MUCT 113 continued. Prerequisite: MUCT 113.

MUCT 115. Accelerated Fundamentals of Music (1). Fall (first eight weeks). Intense study of reading and writing music notation for scales, keys, intervals, triads, rhythm and meter. Open only to music majors and minors. Prerequisite: middle score on placement exam. Should be taken concurrently with MUCT 141 and MUCT 151.

MUCT 116. Fundamentals of Composition (2). Fall, Spring. Basic compositional techniques for students not yet admitted to baccalaureate program in music composition. May be repeated.

MUCT 125. Music of World Cultures (3). Fall, Summer. Musical systems of major non-Western art musics: Africa, Near East, Pacific and Asia. Theoretical, analytical and cultural concepts related to music. Not open to bachelor of music degree students, except for those in the world music program. Applicable to the humanities and arts and international perspective general education requirements.

MUCT 141. Aural Skills I (2). Fall, Spring, Summer. Basic skills in sightsinging; rhythmic, melodic and harmonic dictation of diatonic and triadic materials. Prerequisite: middle or high score on placement exam or MUCT 110 or MUCT 114. Should be taken concurrently with MUCT 151.

MUCT 142. Aural Skills II (2). Fall, Spring, Summer. Sightsinging and dictation of more difficult diatonic and triadic materials. Prerequisite: MUCT 141 and for those with a middle score on the placement exam, MUCT 115. Should be taken concurrently with MUCT 152.

MUCT 151. Theory I (2). Fall. Knowledge and skills in diatonic harmony, melodic organization, form-creating aspects, with examples from a variety of music literature. Prerequisite: middle or high score on placement exam. Should be taken concurrently with MUCT 141 and, for those with middle score on placement exam, MUCT 115.

MUCT 152. Theory II (2). Spring. Knowledge and skills in diatonic and chromatic harmony, melodic organization, part forms, with examples from a variety of music literature. Prerequisite: MUCT 151. Should be taken concurrently with MUCT 142.

MUCT 210. Jazz Aural Skills (2). Spring alternate years. Development of skills in recognition, dictation and singing of harmonic and melodic material characteristic of the jazz idiom. Familiarity with jazz nomenclature recommended. Open to nonmajors, minors and music majors. Prerequisite: MUCT 241 or permission of instructor.

MUCT 216. Composition (1-4). Fall, Spring. Private composition lessons for freshmen and sophomores. May be repeated. Limited enrollment course, with registration priority given to composition majors. Others accommodated on a space-available basis by audition.

MUCT 221. Masterpieces of Music (2). Fall, Spring. Music of important composers from various periods; directed listening of selected works. Not open to bachelor

of music degree students. Applicable to the humanities and arts general education requirement.

MUCT 233. Music in African Culture (2). Spring even years. The study of music in various groups of sub-Sahara Africa with emphasis on its relation to individual cultures, its structure and performance. Applicable to the humanities and arts and international perspective general education requirements.

MUCT 234. Music in Japanese Culture (2). Spring odd years. The study of music in Japanese religious ritual, historical court and popular settings, and music for theater and concert, with emphasis on its socio-historical context. Applicable to the humanities and arts and international perspective general education requirements.

MUCT 235. Music in Indonesian Culture (2). Fall. The study of music in Indonesia, particularly in Bali and Java, with emphasis on its historical and cultural context. Applicable to the humanities and arts and international perspective general education requirements.

MUCT 237. Jazz (3). Spring. The music of various styles of jazz from around 1900 to the present. Theoretical, analytical, cultural and performance concepts will be related to the music. Applicable to the cultural diversity in the United States general education requirement.

MUCT 241. Aural Skills III (2). Fall, Spring, Summer. Intermediate skills in sightsinging; rhythmic, melodic and harmonic dictation of chromatic material including seventh chords. Should be taken concurrently with MUCT 251. Prerequisite: MUCT 142.

MUCT 242. Aural Skills IV (2). Fall, Spring, Summer. Sightsinging and dictation of highly chromatic and twentieth-century materials. Should be taken concurrently with MUCT 252. Prerequisite: MUCT 241.

MUCT 251. Theory III (2). Fall. Knowledge and skills in chromatic harmony, counterpoint and large-scale forms (sonata, rondo, etc.) with examples from a variety of music literature. Prerequisite: MUCT 152. Should be taken concurrently with MUCT 241.

MUCT 252. Theory IV (2). Spring. Twentieth-century techniques and styles. Prerequisite: MUCT 251. Should be taken concurrently with MUCT 242.

MUCT 261. Music History I (3). Fall. Study of the history, social setting and style of Western art music in the Medieval, Renaissance and Baroque periods (ca. 800-1750). Prerequisite: MUCT 152.

MUCT 262. Music History II (2). Spring. Study of the history, social setting and style of Western art music in the Classical and Romantic periods (ca. 1730-1900). Prerequisites: MUCT 251, MUCT 261.

MUCT 308. Keyboard Harmony I (2). Fall even years. Use of keyboard skills related to score reading, transposition, extemporization and accompanying.

MUCT 309. Keyboard Harmony II (2). Spring odd years. Continuation of keyboard skills developed in MUCT 308. Prerequisite: MUCT 308.

MUCT 315. Orchestration (2). Fall. Score analysis; arranging and/or composing for various families of orchestra (woodwinds, brass, percussion, strings) and scoring for full symphonic orchestra. Prerequisite: MUCT 251.

MUCT 320. Band Scoring (2). Fall, Spring. Scoring for band instruments, from small ensembles to concert band. Prerequisite: MUCT 251.

MUCT 325. Choral Arranging (2). Spring. Text analysis; arranging for men's, treble, and mixed voices; A Cappella and accompanied ensemble arranging techniques. Prerequisite: MUCT 251.

MUCT 345. Survey of Music Technology (3). Spring. Overview of music technology; use of computers in music (yesterday, today and tomorrow). Philosophical implications of technology and musical expression. Literature of music technology in pop, jazz and the avant-garde. No prerequisites.

MUCT 361. Music History III (2). Fall. Study of the history, social setting and style of Western art music in the twentieth century. Prerequisites: MUCT 252, MUCT 262.

MUCT 395. Workshop on Current Topics (1-4). Fall, Spring, Summer. Intensive educational experience on selected topics in music related to skill development, content update or materials development. Prerequisite: As announced for each workshop. May be repeated on approval of adviser.

MUCT 403. Counterpoint I (2). Fall odd years. 16th-century counterpoint. Prerequisites: MUCT 251, MUCT 261.

MUCT 404. Counterpoint II (2). Spring even years. 18th-century counterpoint: tonal counterpoint in three and four voices; canon, invention, fugue, chorale-prelude. Prerequisites: MUCT 251, MUCT 261.

MUCT 406. Problems in Music History (3). Fall, Spring. Research of topics and problems in music history. Prerequisite: consent of instructor. May be repeated to 12 hours.

MUCT 407. Performance Practice (2). Fall even years. Performance practice in music, improvisation, ornamentation, accompaniment, instrumentation, rhythm and tempo. Prerequisite: MUCT 262.

MUCT 408. Chamber Music Literature (2). Fall odd years. Study of selected major chamber works of various periods. Prerequisite: MUCT 262.

MUCT 409. Symphonic Literature (2). Fall even years. Study of major symphonic works from 1750 to modern period. Prerequisites: MUCT 252, MUCT 262.

MUCT 410. Contemporary Music Pro-Seminar (2). Fall. Musical styles and techniques of 20th century. Compositional and analytical approach, considering various influences of past. May be repeated to eight hours. Prerequisite: MUCT 361.

MUCT 412. Opera Literature (2). Fall odd years. Study of major operatic works of various periods. Prerequisite: MUCT 262.

MUCT 416. Composition (1-4). Fall, Spring. Private composition lessons for juniors and seniors. May be repeated. Limited enrollment course, with registration priority given to composition majors. Others accommodated on a space-available basis by audition.

MUCT 420. Introduction to Ethnomusicology (2). Spring even years. Topics and techniques in ethnomusicology. Open to students interested in all music as aspects of culture.

MUCT 421E. Afro-Caribbean Ensemble (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUCT 422E. Balinese Gamelan (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUCT 423E. Early Music Ensemble (Instrumental) (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUCT 424E. Early Music Ensemble (Vocal) (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUCT 425E. New Music Ensemble (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUCT 431. Aesthetics of Black Music (3). Spring. West African and African-American concepts of music; modifications and innovations in America from slavery to present. Applicable to the cultural diversity in the United States general education requirement.

MUCT 436. Audio Recording Techniques (2). Fall, Spring. Concert and studio multi-track recording methods culminating with an actual recording session. Students will gain some hands-on experience. Extra fee.

MUCT 437. Advanced Recording Techniques (2). Spring. Advanced studio multi-track techniques and stereo concert hall recording. Emphasis placed on applied recording techniques, in-depth understanding of peripheral hardware and microphone choice and placement. Prerequisite: MUCT 436. Extra fee.

MUCT 444. Music Technology I (3). Fall. Introduction to the principles of sound and digital audio (sound editing, processing, mixing). Includes hands-on investigation of course techniques and principles in a studio setting. Course materials are practiced during individual studio lab times. Prerequisites: None. Extra fee.

MUCT 445. Music Technology II (3). Spring. Introduction to the principles of sound synthesis (Musical instrument Digital Interface, sequencing, synthesizers, controllers). Includes hands-on investigation of course techniques and principles in a studio setting. Course materials are practiced during individual studio lab times. Prerequisites: None. Extra fee.

MUCT 446. Music Technology III (3). Fall. Advanced concepts related to principles of sound, digital audio (sound editing, processing, mixing), and synthesis. Includes hands-on investigation of course techniques and principles in a studio setting. Emphasis on music programming languages. Course materials are practiced during individual studio lab times and tutorial session. Prerequisites: MUCT 444 and MUCT 445 or consent of instructor. Extra fee.

MUCT 447. Music Technology IV (3). Spring. Advanced concepts related to principles of sound, digital audio, and synthesis relative to real time audio environments. Includes hands-on investigation of course techniques and principles in a studio setting. Emphasis on music programming languages. Course materials are practiced during individual studio lab times and tutorial sessions. Prerequisites: MUCT 445 and MUCT 446 or consent of instructor. Extra fee.

MUCT 470. Reading and Research (2-4). Fall, Spring. Directed independent reading and research in history, philosophy, theory or aesthetics of music. Prerequisites: 16 hours of music theory and history, and consent of instructor.

**MUED Music Education**

MUED 125. Percussion Class (1). Fall, Spring. Prerequisite: MUED 145. (Elective).

MUED 130. Trumpet-French Horn Class (1). Fall, Spring, Alternate summers.

MUED 136. Trombone-Euphonium-Tuba Class (1). Fall, Spring, Alternate summers.

MUED 140. Clarinet-Saxophone Class (1). Fall, Spring, Alternate summers.

MUED 145. Flute-Percussion Class (1). Fall, Spring.

MUED 146. Oboe-Bassoon Class (1). Fall, Spring, Alternate summers.

MUED 147. Bassoon Reed Class (1). Spring. (Elective).

MUED 150. Class Piano (1). Fall, Spring. Class piano instruction for beginners and those with minimal keyboard experience. Placement into MUED 150 and MUED 151 is determined on the basis of an audition. Only open for credit to music majors and minors. Grade of C or better required for admittance into MUED 151. Extra fee.

MUED 151. Class Piano (1). Fall, Spring. MUED 150 continued. Grade of C or better required for admittance into sophomore-level group piano courses. This course includes Piano Proficiency I. Extra fee.

MUED 154. Class Piano (1). Fall, Spring. Intermediate class study. A more advanced approach to the acquisition of functional skills for those with advanced keyboard facility who need class instruction in order to pass functional proficiency requirements. A grade of C or better required for admittance into sophomore-level group piano courses; includes Piano Proficiency I. Extra fee.

MUED 156. Beginning Piano for the Non-music Major I (2). Fall, Spring. Class piano course for beginning work in music reading, pop/jazz chords, keyboard technique, improvisation and elementary piano literature. Not open to music majors or minors. Extra fee.

MUED 157. Beginning Piano for the Non-music Major II (2). Spring. MUED 156 continued. Class piano course for beginning work in music reading, pop/jazz chords, keyboard technique, improvisation and easy piano literature. Not open to music majors or minors. Prerequisite: MUED 156 or equivalent. Extra fee.

MUED 170. Voice Class (1). Fall, Spring. Beginning study of voice production, breathing, posture and diction through vocalises and songs in English. Only open to music majors and minors.

MUED 177. Voice Class (1). Fall, Spring. MUED 170 continued. Prerequisite: MUED 170. Open to non-majors.

MUED 180. String Class (2). Fall, Spring.

MUED 190. Troubadour Harp Class (1). Fall, Spring. (Elective).

MUED 195. Guitar Class (1). Fall, Spring, Summer. (MUED majors and minors only.)

MUED 222. Global Music Traditions (2). Fall. Study samples of music outside of the Western-art tradition. Examine various cultural values, practices, contexts, and methods of transmission in relation to the musical traditions. Identify resources and materials for further study or application. Prerequisite: MUCT 114

or equivalent. Applicable to the humanities and arts and international perspective general education requirements.

MUED 240. Introductory Music Field Experience (3). Fall, Spring. Introduction to the music education profession and a wide variety of teaching situations at all levels. Prerequisites: sophomore standing in music; GPA of 2.5, grade of C or above in each course with a MUED prefix, and satisfactory progress in all Music Core courses taken prior to MUED 240. C/F hrs.: 24 hours. Required of all sophomores.

MUED 245. Music Teaching Skills for the Middle Childhood Teacher (2). Fall, Spring, Summer. Development of skills for planning and implementing children's musical experiences with emphasis on middle childhood grades (4-9); focus on thematic integration with other subject areas. C/F hrs.: 20. Prerequisites: ENG 112, EDHD 201, sophomore standing.

MUED 246. Music Education for Early Childhood (2). Fall, Spring, Summer. Understand the elements of music through conceptual learning; create, plan, and evaluate developmentally and musically appropriate programs for children (0-8 years). C/F hrs.: 20. Prerequisites: ENG 112, EDHD 201, sophomore standing.

MUED 250. Class Piano: Instrumental Harmonization and Score Reading (Proficiency II) (2). Fall, Spring. Course for intermediate-level work in melody harmonization, transposition, and sight-reading of piano, choral and instrumental scores. Prerequisite: Piano Proficiency I. Grade of C or better required for admittance into next course. Extra fee.

MUED 251. Class Piano: Instrumental Harmonization and Score Reading II (1). Fall. Class piano course for students with advanced keyboard facility; intermediate-level work in melody harmonization, pop/jazz chords and sight-reading of piano and instrumental scores. Prerequisite: Piano Proficiency I. Grade of C or better required for admittance into accompanying course. Extra fee.

MUED 252. Class Piano: Choral Harmonization and Score Reading I (2). Fall, Spring. Class piano course for intermediate-level work in melody harmonization, pop/jazz chords and sight-reading of choral scores. Prerequisite: Piano Proficiency I. Grade of C or better required for admittance into accompanying course. Extra fee.

MUED 256. Class Piano: Accompanying as a Teaching Tool I (1). Fall, Spring. Class piano course for music education students who are not advanced pianists; provides introductory work in accompanying skills. Prerequisite: Piano Proficiency II. Grade of C or better required of music education majors for graduation. Extra fee.

MUED 257. Class Piano: Advanced Harmonization, Score Reading and Accompanying (Proficiency II and III) (2). Fall, Spring. Course for students with advanced keyboard facility; intermediate-level melody harmonization, accompanying and sight-reading of piano, choral and instrumental scores. Prerequisite: Piano Proficiency I. Grade of C or better required of music education majors for graduation. Extra fee.

MUED 340. Elementary Music Methods (2). Fall, Spring. Concentrated study of organization, administration and teaching of music in the elementary general music grades; emphasizes correlation of methods seminars with clinical and field activities. C=10 hours. Prerequisites: MUED 240, GPA of 2.5, grade of "C" or better in each course with a MUED prefix, satisfactory progress in all MUED courses taken prior to enrollment, pass Piano Proficiency I, instrumental majors

must have successfully completed two techniques classes and the voice class with a grade of "C" or better.

MUED 341. General Junior High Methods (3). Fall, Spring. Concentrated study of organization, administration and teaching of general music in middle school/junior high and secondary grades; emphasizes correlation of methods seminars with clinical and field activities. C=10 hours. Prerequisites: MUED 240, GPA of 2.5, grade of "C" or better in each course with a MUED prefix, satisfactory progress in all MUCT courses taken prior to enrollment, pass Piano Proficiency I, instrumental majors must have successfully completed two techniques classes and the voice class with a grade of "C" or better.

MUED 342. Band/Orchestra Methods (2). Fall, Spring. Concentrated study of organization, administration and teaching of band and orchestra music in the public schools; emphasizes correlation of methods seminars with clinical and field activities. To be taken with MUED 343. Prerequisites: MUED 240, GPA of 2.5, grade of "C" or better in each course with a MUED prefix, satisfactory progress in all MUCT courses taken prior to enrollment, pass Piano Proficiency I, instrumental majors must have successfully completed two techniques classes and the voice class with a grade of "C" or better.

MUED 343. Band Field Experience (2). Fall, Spring. Field component of MUED 342. Fall semester-students are assigned to the University Cooperative schools, M/W mornings. Spring semester: Option 1, assigned to the University Cooperative schools, M/W mornings or Option 2 (by permission), assigned to an area school, Fridays. Includes observation and teaching. To be taken with MUED 342. Spring students must meet with the music education adviser for placement selection during the preceding Fall semester. F=minimum 48 hours. Prerequisites: MUED 240 and all other prerequisites as listed for MUED 342. Graded S/U.

MUED 344. Choral Methods (2). Fall. Concentrated study of organization, administration and teaching of choral music in the public schools; emphasizes correlation of methods seminars with clinical and field activities. To be taken with MUED 345. Prerequisites: MUED 240, GPA of 2.5, grade of "C" or better in each course with a MUED prefix, satisfactory progress in all MUCT courses taken prior to enrollment, pass Piano Proficiency I, instrumental majors must have successfully completed two techniques classes and the voice class with a grade of "C" or better.

MUED 345. Choral Field Experience (2). Fall. Field component of MUED 344. Students are assigned to the University Lab schools and/or area schools. Includes observation and teaching. To be taken with MUED 344. F=minimum 48 hours. Prerequisites: MUED 240, GPA of 2.5, grade of "C" or better in each course with a MUED prefix, satisfactory progress in all MUCT courses taken prior to enrollment, pass Piano Proficiency I, instrumental majors must have successfully completed two techniques classes and the voice class with a grade of "C" or better. Graded S/U.

MUED 346. Classroom Methods (2). Spring. Concentrated study of organization, administration and teaching of classroom/general music in the public schools; emphasizes correlation of methods seminars with clinical and field activities. To be taken with MUED 347. Prerequisites: MUED 240, GPA of 2.5, grade of "C" or better in each course with a MUED prefix, satisfactory progress in all MUCT courses taken prior to enrollment, pass Piano Proficiency I, instrumental majors must have successfully completed two techniques classes and the voice class with a grade of "C" or better.

MUED 347. Classroom Field Experience (2). Spring. Field component of MUED 346. Students are assigned to the University Lab schools and/or area schools. Includes observation and teaching. To be taken with MUED 346. F=minimum 48 hours.

Prerequisites: MUED 240, GPA of 2.5, grade of "C" or better in each course with a MUED prefix, satisfactory progress in all MUCT courses taken prior to enrollment, pass Piano Proficiency I, instrumental majors must have successfully completed two techniques classes and the voice class with a grade of "C" or better. Graded S/U.

MUED 348. Orchestra/Band Methods (2). Fall. Concentrated study of organization and administration of orchestra and band programs and teaching of orchestra and band music in public and private school settings; emphasizes correlation of methods seminars with clinical and field activities. To be taken with MUED 349. Prerequisites: MUED 240, GPA of 2.5, grade of "C" or better in each course with a MUED prefix, satisfactory progress in all MUCT courses taken prior to enrollment, pass Piano Proficiency I, instrumental majors must have successfully completed two techniques classes and the voice class with a grade of "C" or better.

MUED 349. Orchestra/Band Field Experience (1-2). Fall. Field component of MUED 348. Students are assigned to area schools for observation and teaching experience. To be taken with MUED 348. Prerequisites: MUED 240, GPA of 2.5, grade of "C" or better in each course with a MUED prefix, satisfactory progress in all MUCT courses taken prior to enrollment, pass Piano Proficiency I, instrumental majors must have successfully completed two techniques classes and the voice class with a grade of "C" or better. Graded S/U.

MUED 350. Choral Methods for Instrumental and Classroom Music Education Majors (2). Fall, Spring. Study of choral methods and repertoire that will provide students with the tools necessary for building and maintaining successful choral programs in elementary, middle, and secondary schools. Prerequisites: MUED 240, GPA of 2.5, grade of "C" or better in each course with a MUED prefix, satisfactory progress in all MUCT courses taken prior to enrollment, pass Piano Proficiency I, instrumental majors must have successfully completed two techniques classes and the voice class with a grade of "C" or better.

MUED 360. Musical Theatre Production (2). Spring. On demand. Overview of considerations necessary in production of music theatre at public school level.

MUED 395. Workshop on Current Topics (1-4). On demand. Intensive educational experience on selected topics related to skill development, content update or materials development. Typically, an all day or similar concentrated time format used. Requirements usually met within time format.

MUED 402. Beginning Wind and Percussion Instrument Repair (1). Spring. Basic practices and techniques of instrument repair. Extra fee.

MUED 451. Advanced Methods Classroom Music (2). Fall. Examination of methods, instructional hardware, organizational patterns and curricular models. Available for graduate credit also. Prerequisite: MUED 340 or consent of instructor. Should be completed prior to student teaching. C=10 hours.

MUED 458. Marching Band Techniques (2). Spring. Techniques in planning, charting and rehearsing marching band shows and administering public school marching bands. Prerequisite: junior standing.

MUED 459. Examination and Performance of Choral Repertoire (2). Spring. Material suitable for use in secondary schools; related performance practices and their solutions. C=5 hours.

MUED 460. Reading in the Content Area (3). Fall, Spring. Preparation in the fundamental skills of teaching reading within a music classroom setting. Includes organization of instruction, protocols for oral language development,

strategies for word skill development, reading comprehension, and assessment. Meeting times will be arranged.

MUED 470. Readings in Music Education (1-3). Fall, Spring. Special topics in music education. Admittance by consent of instructor.

MUED 491. Teaching Practicum (1-2). Fall, Spring. Supervised individualized teaching experience in area of specialization. Prerequisite: consent of instructor. Graded S/U.

MUED 497. Student Teaching (10-16). Fall, Spring. Supervised teaching in area schools, supplemented by conferences and seminars. 12 semester hours required of all music education majors. Meets student teaching requirement for multi-age certification/licensure in music. Graded S/U. Extra fee.

#### **MUS General Music**

MUS 099. Recital Attendance (). Fall, Spring. Required of all music majors for six semesters. Successful completion of course requires attendance at minimum of 15 on-campus music performances. Graded S/U.

MUS 190. Beginning Guitar Non-Majors (2). Fall, Spring. Introduction to the guitar, fundamentals of technique and music notation reading. Open to non-music majors only.

MUS 191. Intermediate Guitar Non-Majors (2). Fall, Spring. MUS 190 continued. Open to non-music majors only. Prerequisites: MUS 190 or previous experience and consent of instructor.

#### **MUSP Music Performance Studies**

MUSP 160. Sight Reading I (1). Fall. Development of visual comprehension of intervallic patterns and basic rhythmic patterns for the keyboard player. Prerequisite: consent of instructor.

MUSP 195. Pedal Harp Class (1). Fall, Spring. Prerequisite: one semester of Troubadour Harp (MUED 190) or permission of instructor. Extra fee.

MUSP 201. Guitar Lab (1). Fall, Spring. May be repeated. Practical applications of concepts covered in MUS 191, Intermediate Guitar class; continued study of chords, scales, reading and repertoire. Prerequisites: MUS 191 or equivalent and consent of instructor.

MUSP 210. Piano Repertoire I (3). Fall alternate years. Literature from early keyboard music through classical. Prerequisite: consent of instructor.

MUSP 211. Piano Repertoire II (3). Spring alternate years. Literature from Romantic era to present. Prerequisite: consent of instructor.

MUSP 212. Jazz Improvisation and Repertoire I (2). Fall alternate years. Techniques of jazz improvisation and related repertoire; application of basic scales, arpeggios, melodic construction to blues and standard pop tunes. Prerequisite: MUCT 151 or consent of instructor.

MUSP 213. Jazz Improvisation and Repertoire II (2). Spring alternate years. Advanced techniques of jazz improvisation and related repertoire; application of modes, altered scales, chord extensions, chromatic harmony to jazz compositions. Prerequisite: MUSP 212 or consent of instructor.

MUSP 214. Singer's Diction I (2). Fall. Fundamentals and application of the International Phonetic Alphabet (IPA) to selected English and Italian song

texts. Instruction and drill in the rules of pronunciation as applied to the singing of these languages. Prerequisite: none.

MUSP 215. Organ Repertoire I (2). Fall alternate years. Literature from 1325 to the present, excluding the music of J.S. Bach. Prerequisite: consent of instructor.

MUSP 216. Organ Repertoire II (2). Spring alternate years. Organ music of J.S. Bach. Prerequisite: consent of instructor.

MUSP 218. Jazz Piano Fundamentals (3). Spring alternate years. Analysis of jazz piano accompaniment styles; techniques of left-hand voicing and rhythmic accompaniment; scale repertoire; piano arranging from lead sheets. Prerequisites: MUED 151 and either a high score on placement exam or MUCT 110, MUCT 114 or MUCT 115.

MUSP 219. Jazz Pedagogy (2). Fall(instrumentalists only), Spring(vocalists only). Prepares student to teach fundamentals of jazz improvisation, history, and jazz ensemble techniques. Prerequisite: MUCT 151-Theory I or consent of instructor.

MUSP 221. Applied Percussion (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 224. Singer's Diction II (2). Spring. Application of the International Phonetic Alphabet (IPA) to selected German and French song texts. Instruction and drill in the rules of pronunciation as applied to the singing of these languages. Prerequisite: MUSP 214.

MUSP 231. Applied Trumpet (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 232. Applied French Horn (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 233. Applied Trombone (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 234. Applied Euphonium (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 235. Applied Tuba (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 241. Applied Flute (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 242. Applied Oboe (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 243. Applied Clarinet (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 244. Applied Saxophone (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 245. Applied Bassoon (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 246. Applied Jazz Saxophone (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 247. Applied Jazz Trumpet (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 248. Applied Jazz Trombone (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 255. Applied Jazz Percussion (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 256. Applied Jazz Bass (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 260. Applied Jazz Guitar (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 261. Applied Piano (1-4). Fall, Spring, Summer. (Permission of instructor required for two or more credits.) Prerequisite: passage of audition. Extra fee.

MUSP 262. Applied Harpsichord (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 263. Applied Organ (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 264E. Accompanying Techniques I (1). Fall. Problems involving musical comprehension of solo part together with accompaniment and general introduction to vocal and instrumental accompaniment literature. Prerequisite: MUSP 160 or consent of instructor.

MUSP 265E. Piano Four-Hand Class (1). Fall, Spring. May be repeated. Appropriate four-hand literature. Prerequisite: MUSP 160 or consent of instructor.

MUSP 269. Applied Jazz Piano (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 271. Para-Voice (2). Fall, Spring. No audition required. Extra fee.

MUSP 272. Applied Voice (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 275. Introduction to Opera Theater (2). Fall. Basic terminology and practices of opera theatre.

MUSP 281. Applied Violin (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 282. Applied Viola (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 283. Applied Cello (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 284. Applied Double Bass (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 285. Applied Harp (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 286. Applied Guitar (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 305. Conducting I (2). Fall. Fundamental beat and cueing techniques; option of either instrumental or vocal emphasis. Prerequisite: passing grade on freshman placement exam or MUCT 110, or consent of instructor.

MUSP 306. Conducting II (2). Spring. Advanced study and analysis of baton techniques, score reading and rehearsal procedures; option of either instrumental or vocal emphasis. Prerequisite: MUSP 305 or consent of instructor.

MUSP 310. Vocal Repertoire for the Young Singer (1). Fall. Designed for music education choral/musical theater majors only. Late 19th century to present with emphasis on British and American song literature for young singers.

MUSP 311. Vocal Repertoire I (2). Fall. Late 19th century to present British and American song literature; repertoire for high school vocal solo contest; Scandinavian and Russian song literature. Prerequisite: consent of instructor.

MUSP 312. Vocal Repertoire II (2). Spring alternate years. 19th and 20th century French and German art song literature. Prerequisite: consent of instructor.

MUSP 313. Jazz Arranging Analysis I (3). Fall alternate years. Swing repertoire, typical chord progressions, formal structure, melodic construction, compositional devices. Basic arranging techniques common to traditional big-band music. Prerequisite: MUSP 213 or consent of instructor.

MUSP 314. Jazz Arranging Analysis II (3). Spring alternate years. Harmonic trends of bop period; substitute chords, altered chords, melodic and rhythmic treatment. Addition of double reeds, French horns, and strings to the big-band. Contemporary trends in jazz and commercial music, including small group and rock styles. Prerequisite: MUSP 313 or consent of instructor.

MUSP 320E. Brass (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 321E. Brass Choir (1). Spring. Elective (small) ensemble. May be repeated.

MUSP 322E. Classical Guitar (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 323E. Electric Guitar (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 324E. Euphonium-Tuba (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 325E. Harp (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 326E. Horn Club (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 327E. Jazz (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 328E. Jazz Lab I (1). Fall, Spring. Major (large) ensemble. May be repeated.

MUSP 329E. Jazz Lab II (1). Fall, Spring. Major (large) ensemble. May be repeated.

MUSP 330E. Mixed Chamber (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 331E. Music Theater Productions (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 332E. Percussion (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 333E. Piano Accompaniment Practicum (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 334E. Saxophone (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 335E. String (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 336E. Trombone Choir (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 337E. Trumpet Guild (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 338E. Varsity Quartet (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 339E. Vocal Chamber Lab (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 340E. Vocal Jazz Ensemble (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 341E. Woodwind (1). Fall, Spring. Elective (small) ensemble. May be repeated.

MUSP 360. Sight Reading II (1). Spring. Rapid comprehension of complex intervallic and rhythmic patterns; special attention to ensemble precision. Prerequisite: MUSP 160 or consent of instructor.

MUSP 364. Accompanying Techniques II (1). Spring. MUSP 264 continued, using more advanced literature. Prerequisite: MUSP 264 or consent of instructor.

MUSP 367. Piano Pedagogy I (3). Fall alternate years. Methods, materials and teaching techniques for the beginning pre-college student. Prerequisite: consent of instructor.

MUSP 368. Piano Pedagogy II (3). Spring alternate years. Methods, materials and teaching techniques for the intermediate pre-college student. Prerequisite: consent of instructor.

MUSP 370. Vocal Pedagogy (3). Spring. Basic concepts of vocal pedagogy; methods, materials and terminology. Prerequisite: consent of instructor.

MUSP 378E. Opera Theater (2). Fall, Spring. May be repeated. Development of stage techniques for more advanced students in productions of scenes and complete operas. Prerequisite: MUSP 275 and consent of instructor.

MUSP 396. Service Playing I (2). Fall alternate years. Hymn playing, transposition, modulation, improvisation and accompanying at the organ. Prerequisite: consent of instructor.

MUSP 397. Service Playing II (2). Spring alternate years. MUSP 396 continued. Prerequisite: MUSP 396 or consent of instructor.

MUSP 401. History and Literature of Jazz (2). Spring alternate years. Jazz from African influences through present developments; personalities involved in stylistic change.

MUSP 402. Jazz Composition (2). Fall alternate years. Detailed analysis of modern jazz works, including the study of innovative compositional techniques used by historically significant writers. Numerous student writing projects for jazz combo are required. Prerequisite: MUCT 237.

MUSP 410. Harpsichord Repertoire I (3). Keyboard literature to 1700 based on original source material and contemporary editions; emphasis on performance. Prerequisite: consent of instructor.

MUSP 411. Harpsichord Repertoire II (3). Solo harpsichord literature from 1700 to the present, emphasis on performance. Prerequisite: MUSP 410 or consent of instructor.

MUSP 415. Organ Construction (2). History of the design and construction of the organ. Prerequisite: consent of instructor.

MUSP 416. Church Music (2). Music of the major Western churches; plainsong, hymnology, liturgies. Prerequisite: consent of instructor.

MUSP 421. Applied Percussion (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 431. Applied Trumpet (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 432. Applied French Horn (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 433. Applied Trombone (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 434. Applied Euphonium (1-4). Fall, Spring, Summer. Extra fee.

MUSP 435. Applied Tuba (1-4). Fall, Spring, Summer. Extra fee.

MUSP 436E. Wind Ensemble (1). Fall. Major (large) ensemble. May be repeated.

MUSP 437E. Symphonic Band (2). Spring. Major (large) ensemble. May be repeated.

MUSP 438E. Concert Band (1-2). Fall, Spring. Major (large) ensemble.

MUSP 439E. Marching Band (2). Fall. Major (large) ensemble.

MUSP 440E. University Band (1). Fall, Spring. Major (large) ensemble. May be repeated.

MUSP 441. Applied Flute (1-4). Fall, Spring, Summer. Extra fee.

MUSP 442. Applied Oboe (1-4). Fall, Spring, Summer. Extra fee.

MUSP 443. Applied Clarinet (1-4). Fall, Spring, Summer. Extra fee.

MUSP 444. Applied Saxophone (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 445. Applied Bassoon (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 446. Applied Jazz Saxophone (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 447. Applied Jazz Trumpet (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 448. Applied Jazz Trombone (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 450E. Athletic Band (1). Spring. Major (large) ensemble. May be repeated.

MUSP 453. Brass Pedagogy (2). Spring alternate years. Teaching techniques and materials for brass instruments. Prerequisite: consent of instructor.

MUSP 454. Woodwind Pedagogy (2). Spring. Teaching techniques and materials for woodwind instruments. Prerequisite: consent of instructor.

MUSP 455. Applied Jazz Percussion (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 456. Applied Jazz Bass (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 458. String Pedagogy (2). Spring alternate years. Upper and lower strings. Principles of teaching string instruments. Investigation of related literature and materials. Prerequisite: consent of instructor.

MUSP 459. Organ Pedagogy (2). Spring alternate years. Principles, techniques and literature applied to various levels of organ study. Prerequisite: consent of instructor.

MUSP 460. Applied Jazz Guitar (1-4). Fall, Spring. May be repeated. Extra fee.

MUSP 461. Applied Piano (1-4). Fall, Spring, Summer. (Permission of instructor required for 2 or more credits hours.) Prerequisite: passage of audition. Extra fee.

MUSP 462. Applied Harpsichord (1-4). I, II. Prerequisite: passage of audition. Extra fee.

MUSP 463. Applied Organ (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 464. Duo Repertoire (2). Spring. A survey of the instrumental sonata and duo repertoire for various instruments and piano. Focus is on listening and analysis of repertoire and includes a limited amount of performance. Prerequisite: MUCT 262.

MUSP 465. Orchestral Audition Repertoire for Cello and String Bass (1). Study and performance of orchestral excerpts and other audition repertoire related to the orchestral audition. May be repeated to two hours. Prerequisite: consent of instructor(s).

MUSP 466. Piano Pedagogy Practicum (1). Fall, Spring. May be repeated. Laboratory in supervised piano teaching, both private and classes. Prerequisite: MUSP 367 or consent of instructor.

MUSP 467. Guitar Pedagogy (2). On Demand. Principles, techniques, and literature applied to various levels of guitar study. Prerequisite: consent of instructor.

MUSP 468. Orchestral Audition Repertoire for Violin (1). Study and performance of orchestral excerpts and other audition repertoire. May be repeated for credit. Prerequisite: consent of instructor.

MUSP 469. Applied Jazz Piano (1-4). Fall, Spring. May be repeated. Prerequisite: passage of audition. Extra fee.

MUSP 470. Readings, Research and Performance in Music (1-4). Fall, Spring, Summer. May be repeated. Directed independent readings, research and/or performance related to performance studies. Prerequisites: consent of instructor and department chair.

MUSP 471. Para-Voice (2). Fall, Spring. No audition required. Extra fee.

MUSP 472. Applied Voice (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 473. Vocal Pedagogy Practicum (1). Fall, Spring. May be repeated. Supervised teaching of both private and class voice. Includes participation in designated segments of MUED 240 and/or MUED 340. Prerequisite: MUSP 370 or consent of instructor.

MUSP 476E. University Choral Society (1). Fall, Spring. Major (large) ensemble. May be repeated.

MUSP 477E. A Cappella Choir (1). Fall, Spring. Major (large) ensemble.

MUSP 478E. Collegiate Chorale (2). Fall, Spring. Major (large) ensemble.

MUSP 479E. University Women's Chorus (1). Fall, Spring. Elective (large) ensemble.

MUSP 480E. University Men's Chorus (1). Fall, Spring. Elective (large) ensemble.

MUSP 481. Applied Violin (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 482. Applied Viola (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 483. Applied Cello (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 484. Applied Double Bass (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 485. Applied Harp (1-4). Fall, Spring, Summer. Extra fee.

MUSP 486. Applied Guitar (1-4). Fall, Spring, Summer. Prerequisite: passage of audition. Extra fee.

MUSP 488E. Chamber Orchestra (1). Elective (large) ensemble.

MUSP 489E. Philharmonia (2). Fall, Spring. Major (large) ensemble.

MUSP 495. Senior Recital (2). Fall, Spring, Summer. May be repeated. For performance studies majors only. Required full recital for all degree options. Repertoire requirements determined by respective areas/studios. Prerequisite: satisfactory completion of recital jury and consent of department chair.

### **NEUR Neuroscience**

NEUR 450. Neuroscience Seminar (1). Fall, Spring. Weekly seminar and discussion of research in neuroscience. May be repeated, but only 3 hours may be applied toward a neuroscience major or minor. Prerequisite: consent of instructor. Graded S/U.

NEUR 470. Introduction to Neuroscience Research (1-3). Fall, Spring, Summer. Faculty supervised, independent research in neuroscience. May be repeated but only 3 credits may be applied toward a neuroscience major or minor. Prerequisite: consent of instructor. Graded S/U.

### **NURS Nursing**

NURS 100. Orientation to Nursing (1). Fall. Assists freshmen in choosing nursing as major and career goal; professional nurse's role, history of nursing, future trends in relation to current U.S. health care delivery system.

NURS 301. Nursing Agency I: Concepts (3). Summer. This course provides for acquisition of knowledge of basic nursing theory, concepts, therapeutic communication and selected skills. Students practice nursing interventions in a laboratory setting with simulated clients. Prerequisite: admission to major. Extra fee.

NURS 305. Computer Literacy for Health Professionals (2). Fall, Spring, Summer. Introduction to acquisition of knowledge in computer use and selected applications. Skills developed in computer laboratory setting. Elective course.

NURS 306. Holistic Approach to Nursing Interventions (3). Spring. Focus on holistic model integrating technology, scientific knowledge and alternative/complementary caring modalities into basic and advanced practices of nursing. Elective course.

NURS 307. Nursing Care of the Terminally Ill: Issues in Palliative Care (2). Spring. Theory course focuses on concepts, knowledge and skills necessary to provide holistic nursing care to individuals and their significant others who are affected by a terminal illness. Elective course. Prerequisite: NURS 312.

NURS 311. Nursing Agency II: Assessment (3). Summer. This course provides for acquisition of knowledge and development of skill in comprehensive nursing assessment. Pre- or corequisite: NURS 301. Extra fee.

NURS 312. Adult Health Nursing I (7). Fall. Care of adults with common nursing problems using Orem's Self-Care Deficit Theory of Nursing. Prerequisites: NURS 301, NURS 311. Extra fee.

NURS 313. Gerontological Nursing (3). Fall, Spring. Focus on theories and concepts of aging and health, based on Universal Self-Care Requisites from Orem's Self-Care Deficit Theory of Nursing. Prerequisites: NURS 312, NURS 317, NURS 318, NURS 321.

NURS 314. Introduction to Pathophysiology and Pharmacology (4). Fall, Spring. Basic concepts of pathophysiology and pharmacology. Prepares for critical thinking in application of concepts to nursing practice. Prerequisite: Admission to major for RN. Approved for web delivery.

NURS 317. Concepts of Pathophysiology (2). Fall. Basic science of pathophysiology of disease across the life span. Prepares for critical thinking in application of concepts to nursing practice. Prerequisites: NURS 301, NURS 311.

NURS 318. Concepts of Nursing Pharmacology (2). Fall. Fundamental pharmacologic principles of physiological response to drugs, therapeutic outcomes, and potential drug interactions. Prepares for critical thinking in application of pharmacotherapy principles to nursing. Prerequisites: NURS 301, NURS 311.

NURS 321. Nursing Agency III: Interventions (2). Fall. Application of principles of nursing interventions in the learning lab on simulated clients. Prerequisites: NURS 301 and NURS 311. Extra fee.

NURS 362. Women's Health Nursing (5). Fall, Spring. Focus on knowledge needed in nursing care of women within a self-care framework. Clinical experiences provide for holistic care across the life span with emphasis on childbearing. Prerequisites: NURS 312, NURS 317, NURS 318, NURS 321. Extra fee.

NURS 363. Mental Health Nursing (5). Fall, Spring. Psychosocial influences on self-care agency are presented within the context of culturally competent nursing care. These concepts are interpreted within self-care deficit theory and applied in clinical experience. Prerequisites: NURS 312, NURS 317, NURS 318, NURS 321. Extra fee.

NURS 364. Parent-Child Nursing (5). Fall, Spring. The student has opportunities to gain experience in designing, implementing and evaluating nursing systems for infants, children and adolescents within families and groups. Experiences are in class and clinical laboratories. Prerequisites: NURS 311, NURS 312, NURS 313, NURS 314. Prerequisite or corequisite: NURS 321. Extra fee.

NURS 377. Health Assessment (3). Fall, Spring. Focuses on the continued development of health history, physical and psychosocial assessment skills across the life span. Prerequisite: admission to the RN/BSN program. Extra fee. Approved for web delivery.

NURS 401. Community Health Nursing (5). Fall, Spring. Design and implementation of nursing care for aggregates and communities. Individual and family care is provided within the context of population health. Prerequisites: NURS 312, NURS 317, NURS 318, NURS 321 for basic students. NURS 377, NURS 418, NURS 419 for RN. Distance Ed. for RN only. Extra fee. Approved for web delivery.

NURS 402. Leadership and Management in Nursing (3). Spring. Principles and theories of management and leadership as a basis for provision of nursing care. Prerequisites: NURS 313, NURS 362, NURS 363, NURS 364, NURS 401, NURS 495. Corequisite: NURS 403.

NURS 403. Adult Health Nursing II (7). Spring. Leadership/management principles are applied in design and implementation of nursing systems for individuals and families with complex problems. Prerequisites: NURS 321, NURS 362, NURS 363, NURS 364, NURS 401. Prerequisite or corequisites: NURS 402, NURS 495, NURS 496. Extra fee.

NURS 404. Interdisciplinary Ethics (1). Fall, Spring. Interdisciplinary dialogue among health professionals. Explores potential conflicts among nurses, physicians and other health care providers. Includes conflict resolution, truth telling, withdrawing nutrition and hydration, whistle blowing and assisted suicide. Prerequisites: first semester nursing courses or RN, or permission of instructor. Elective course.

NURS 405. Oncology Nursing (3). Fall, Spring. Focuses on concepts, knowledge and skills necessary to assist individuals who have cancer and their families. Emphasizes helping people to care for themselves throughout their illness. Prerequisite: first semester nursing courses or RN, or permission of instructor. Elective course.

NURS 407. Emergency Nursing Elective: Concepts of Practice (2). Fall, Spring. Designed to study nursing systems related to episodic, primary and acute care in the emergency care setting. Prerequisite: completion of junior-level nursing courses. Elective course.

NURS 408. Perioperative Nursing Care (3). Spring, Summer. Focus on the practice of perioperative nursing. Application of Self Care Deficit Theory of Nursing will be incorporated in class and clinical experience. Prerequisites: NURS 312, NURS 317, NURS 318, NURS 321. Extra fee.

NURS 410. Computer Trends in Nursing and Health Care (2). Spring. Focuses on various trends and uses of computers in nursing and health care including hospital information systems, health care research and computer-assisted instruction, and related legal-ethical issues. Elective course.

NURS 412. Nursing Leadership and Management (5). Fall, Spring. Focus on design and management of nursing systems for individuals, families, and groups; development of leadership and management skills. Clinical application in various

settings. Prerequisites: NURS 377, NURS 418, NURS 419 for RN. Extra fee. Approved for web delivery.

NURS 414. Research Inquiry I and II (4). Spring, Summer. Students will critically evaluate published research for clinical relevance, identify a research problem, select a conceptual framework, reviewed selected literature, and prepare a quantitative or qualitative research proposal. Prerequisites: admission to the RN/MSN program and permission of Undergraduate Associate Dean.

NURS 415. Advanced Pathophysiology (3). Fall. Overview of pathologic processes that influence the development of disease in humans. Includes discussion of normal function and the impact of disease on health. Prerequisite: admission to the RN/MSN program and permission of Undergraduate Associate Dean.

NURS 416. Advanced Health Assessment (3). Fall. Focuses on specialty specific comprehensive and problem focused advanced patient assessment. Specialty laboratory practice and supervision are required. Prerequisites: admission to RN/MSN program and permission of Undergraduate Associate Dean. Extra fee.

NURS 417. Health Care Aspects of Human Sexuality (3). Spring. Impact on health care of selected components of human sexuality. Aspects include sexual assessment, changes during the life span and disturbances in sexuality due to health conditions. Prerequisites: first semester nursing courses or RN. Elective course.

NURS 418. Theoretical and Professional Foundations in Nursing (4). Fall, Spring. Focus on RN student's transition to professional higher education and theory based on practice. Current professional issues are explored. Political, socioeconomic, ethical and legal issues are critically examined and discussed. Prerequisite: admission to RN/BSN program. Approved for web delivery.

NURS 419. Interpersonal Strategies in Nursing of Older Individuals (6). Fall, Spring. Focus on application of self-care deficit theory of nursing and health maintenance for older individuals within the family and environment; emphasis on development of interpersonal skills for RN. Prerequisite: NURS 377, NURS 418. Extra fee. Approved for web delivery.

NURS 425. Professional Nursing Competency (1). This course provides an overview of NLCEX and practice in the application of knowledge required for the professional nursing examination. Corequisites: NURS 402, NURS 403.

NURS 428. Theories of Addictive Behaviors (3). Spring. Research and treatment related to addictive behaviors are critiqued. Nursing interventions specific for addicted persons are evaluated. Implications of legal/social/health policies on services for this population are explored. Elective course.

NURS 460. Critical Care Nursing (3). Spring. The student works with a preceptor in a critical care unit to design and implement nursing systems for clients with critical health states. Critical care content is presented in lecture. Prerequisites: NURS 362, NURS 363, NURS 364, NURS 401, or RN. Extra fee.

NURS 470. Independent Study in Nursing (1-3). Fall, Spring, Summer. Research or project designed with guidance of a faculty member. Open to senior students with consent of a faculty member. May be repeated.

NURS 472. Perinatal Nursing (3). Spring. This course examines specialized level women's and neonatal healthcare. Theory will include special topics and focus on nursing management of perinatal issues. Clinical experiences are individually arranged. Elective. Prerequisite: NURS 362.

NURS 495. Nursing Research (3). Fall, Spring. Introduction to concepts, issues and processes in nursing research. Emphasis on the research role, critical analysis and evaluation of published research for use in nursing practice. Prerequisites: NURS 311, NURS 312, NURS 313, NURS 314, statistics; NURS 321 prerequisite or corequisite. Approved for web delivery.

NURS 496. Professional Perspectives (3). Fall, Spring. Current professional issues facing nursing are explored. Political, socioeconomic, ethical, legal and professional perspectives are critically examined and discussed. Prerequisite: NURS 321.

#### **OR Operations Research**

OR 380. Introduction to Management Science (3). Fall, Spring, Summer. Introduces various quantitative approaches for modeling and solving business problems. Topics include linear programming models and solution methods, problem formulation via integer and goal programming, decision analysis under uncertainty and simulation. Prerequisites: MIS 200 and STAT 211. Extra fee.

OR 482. Computer Simulation of Management Systems (3). Techniques of setting up stochastic models for inventory, production, queuing, scheduling, economic systems; implementing these models using computer simulation languages (e.g. GPSS). Prerequisites: STAT 212 or MATH 442 and at least one computer programming course.

OR 491. Studies in Operations Research (1-3). On demand. Investigation of selected areas of contemporary problems. May be offered individually and in classes, depending on student needs and nature of material.

#### **PEG Physical Education, General**

PEG 100. Physical Education General (1). Fall, Spring, Summer. Each activity course develops the knowledge, understanding and skills pertinent to the activity. Most activities are coeducational. Offerings each term will vary. Graded S/U.

PEG 104. Aerobic Dance (1). Activity course.

PEG 105. Intermediate Aerobic Dance (1). Activity course.

PEG 106. Archery (1). Activity course.

PEG 107. Badminton (1). Activity course.

PEG 108. Basketball (1). Activity course.

PEG 109. Billiards (1). Activity course. Extra fee.

PEG 111. Bowling (1). Activity course. Extra fee.

PEG 113. Canoeing (1). Activity course. Extra fee.

PEG 115. Colorado Ski Week (1). Activity course. Extra fee.

PEG 117. Cycling (1). Activity course.

PEG 118. Curling (1). Activity course. Extra fee.

PEG 122. Classical Ballet I (1). Activity course.

PEG 123. Classical Ballet II (1). Activity course.

PEG 124. Classical Ballet III (1). Activity course.

PEG 130. Modern Dance I (1). Activity course.

PEG 131. Modern Dance II (1). Activity course.

PEG 132. Modern Dance III (1). Activity course.

PEG 134. Tap Dance II (1). Activity course.

PEG 139. Downhill Skiing (1). Activity course. Extra fee.

PEG 140. Exercise and Conditioning (1). Activity course.

PEG 141. Fencing (1). Activity course. Extra fee.

PEG 143. Fitness Walking (1). Activity course.

PEG 144. Coed Flag Football (1). Activity course.

PEG 146. Golf (1). Activity course. Extra fee.

PEG 147. Intermediate Golf (1). Activity course. Extra fee.

PEG 148. Advanced Golf (1). Activity course. Extra fee.

PEG 149. Beginning Gymnastics Apparatus I (1). Activity course.

PEG 151. Handball (1). Activity course.

PEG 153. Basic Hockey (1). Activity course. Extra fee.

PEG 154. Advanced Hockey (1). Activity course. Extra fee.

PEG 156. English Horsemanship (1). Activity course. Extra fee.

PEG 157. Western Horsemanship (1). Activity course. Extra fee.

PEG 158. Water Aerobics (1). Activity course.

PEG 160. Beginning Ice Skating (1). Activity course. Extra fee.

PEG 161. Figure Skating (1). Activity course. Extra fee.

PEG 162. Precision Skating (1). Activity course. Extra fee.

PEG 163. Jogging (1). Activity course.

PEG 165. Racquetball (1). Activity course.

PEG 168. Self Defense (1). Activity course.

PEG 169. Sailing (1). Activity course. Extra fee.

PEG 170. Skin Diving/Snorkeling (1). Activity course. Extra fee.

PEG 171. Soccer (1). Activity course.

PEG 172. Intermediate Soccer (1). Activity course.

PEG 175. Softball - Coed (1). Activity course.

PEG 176. Squash (1). Activity course.

PEG 178. Life Guard Training (1). Activity course. Extra fee.

PEG 180. Beginning Swimming (1). Activity course.

PEG 181. Intermediate Swimming (1). Activity course.

PEG 182. Advanced Swimming (1). Activity course.

PEG 183. Tennis (1). Activity course.

PEG 184. Triathlon Training (1). Activity course.

PEG 185. Tumbling and Gymnastics (1). Activity course.

PEG 186. Volleyball (1). Activity course.

PEG 187. Weight Training (1). Activity course.

PEG 188. Intermediate Weight Training (1). Activity course.

PEG 189. Whitewater Rafting (1). Activity course. Extra fee.

PEG 191. Tension Management (1). Activity course.

PEG 200. Physical Education General (1). Fall, Spring, Summer. Develops knowledge, understanding and skills pertinent to the activity. Most activities are coeducational. Offerings vary each term. May be taken for grade or S/U.

PEG 204. Aerobic Dance (1). Activity course.

PEG 205. Intermediate Aerobic Dance (1). Activity course.

PEG 206. Archery (1). Activity course.

PEG 207. Badminton (1). Activity course.

PEG 208. Basketball (1). Activity course.

PEG 209. Billiards (1). Activity course. Extra fee.

PEG 211. Bowling (1). Activity course. Extra fee.

PEG 217. Cycling (1). Activity course.

PEG 218. Curling (1). Activity course. Extra fee.

PEG 222. Classical Ballet I (1). Activity course.

PEG 223. Classical Ballet II (1). Activity course.

PEG 224. Classical Ballet III (1). Activity course.

PEG 230. Modern Dance I (1). Activity course.

PEG 231. Modern Dance II (1). Activity course.

PEG 232. Modern Dance III (1). Activity course.

PEG 234. Tap Dance II (1). Activity course.

PEG 236. Diving Introduction (1). Activity course.

PEG 240. Exercise and Conditioning (1). Activity course.

PEG 241. Fencing (1). Activity course. Extra fee.

PEG 242. Intermediate Fencing (1). Activity course.

PEG 243. Fitness Walking (1). Activity course.

PEG 244. Coed Flag Football (1). Activity course.

PEG 246. Golf (1). Activity course. Extra fee.

PEG 247. Intermediate Golf (1). Activity course. Extra fee.

PEG 248. Advanced Golf (1). Activity course. Extra fee.

PEG 249. Beginning Gymnastics Apparatus II (1). Activity course.

PEG 250. Intermediate Gymnastics Apparatus II (1). Activity course.

PEG 251. Handball (1). Activity course.

PEG 253. Basic Hockey (1). Activity course. Extra fee.

PEG 258. Water Aerobics (1). Activity course.

PEG 260. Beginning Ice Skating (1). Activity course. Extra fee.

PEG 261. Figure Skating (1). Activity course. Extra fee.

PEG 262. Precision Skating (1). Activity course. Extra fee.

PEG 263. Jogging (1). Activity course.

PEG 264. Karate (1). Activity course.

PEG 265. Racquetball (1). Activity course.

PEG 266. Intermediate Racquetball (1). Activity course.

PEG 268. Self Defense (1). Activity course.

PEG 270. Skin Diving/Snorkeling (1). Activity course. Extra fee.

PEG 271. Soccer (1). Activity course.

PEG 272. Intermediate Soccer (1). Activity course.

PEG 273. Softball - Men (1). Activity course.

PEG 274. Softball - Women (1). Activity course.

PEG 275. Softball - Coed (1). Activity course.

PEG 276. Squash (1). Activity course.

PEG 278. Life Guard Training (1). Activity course. Extra fee.

PEG 280. Beginning Swimming (1). Activity course. Extra fee.

PEG 281. Intermediate Swimming (1). Activity course. Extra fee.

PEG 282. Advanced Swimming (1). Activity course. Extra fee.

PEG 283. Tennis (1). Activity course.

PEG 285. Tumbling and Gymnastics (1). Activity course.

PEG 286. Volleyball (1). Activity course.

PEG 287. Weight Training (1). Activity course.

PEG 291. Tension Management (1). Activity course.

**PHIL Philosophy**

PHIL 101. Introduction to Philosophy (3). Fall, Spring. Systematic study of enduring human concerns about God, morality, society, the self and knowledge. Applicable to the humanities and arts general education requirement. Approved for web delivery.

PHIL 102. Introduction to Ethics (3). Fall, Spring. Discussion of ethical concepts such as good and evil and right and wrong in the context of contemporary moral issues; major ethical theories as a basis for dealing with contemporary moral concerns. Credit not given for both PHIL 102 and PHIL 125. Applicable to the humanities and arts general education requirement.

PHIL 103. Introduction to Logic (3). Fall, Spring. Basic concepts of logic; how to distinguish arguments from non-arguments, premises from conclusions. Methods for evaluating arguments and how to recognize typical mistakes in reasoning. Applicable to the humanities and arts general education requirement.

PHIL 125. Contemporary Moral Issues (3). Fall or Spring. Study of contemporary moral problems with a focus on what values are and how they differ from facts. Topics may include abortion, promise-keeping, mercy killing, academic dishonesty, and animal rights. Credit not given for both PHIL 125 and PHIL 102. Applicable to the humanities and arts general education requirement.

PHIL 202. History of Ethics (3). Fall or Spring. A study of the classic moral philosophers who have shaped modern thought on the subject, including Aristotle, Hume, Kant and Mill. Attention will be paid to the views of each on moral psychology.

PHIL 203. Philosophical Methods (3). Fall or Spring. Emphasis on developing skills in reading and writing philosophy. Recommended for anyone intending to take upper-level courses in philosophy.

PHIL 204. Aesthetics (3). Fall, Spring. Meaning of "beauty" or aesthetic value in art and nature, approached problematically and applied to present-day experiences. Applicable to the humanities and arts general education requirement.

PHIL 211. History of Ancient Philosophy (3). Fall. Progress of Greek philosophy from its earliest origins in Greece through the Presocratics, Plato and Aristotle, concluding with main themes of Hellenistic, Roman and medieval philosophy. PHIL 211 can function as an excellent introduction to philosophy. Applicable to the humanities and arts general education requirement.

PHIL 212. History of Modern Philosophy (3). Spring. Focus on rationalists (Descartes and Leibniz), empiricists (Locke, Berkeley and Hume) and Kant. Attention to the emergence of skepticism and the rise of modern science as influences on modern philosophy; can function as an excellent introduction to philosophy.

PHIL 216. Introduction to the Philosophy of Mind (3). Fall or Spring. The nature of persons, the relation of mind and body, free will, language and thought, thought and action, the nature of mental phenomena and the problem of other minds (humans, animals and machines).

PHIL 217. World Religions (3). Fall or Spring. Fundamental tenets of major world religions-Hinduism, Buddhism, Confucianism, Taoism, Judaism, Christianity and Islam, with the cultural backgrounds of lands of their development.

PHIL 218. Legal Reasoning (3). Fall or Spring. The logic of judicial decision making, from "mechanical jurisprudence" to various forms of judicial discretion. The role of definition in legal reasoning and several theories of statutory interpretation.

PHIL 230. Scientific Reasoning (3). Fall or Spring. Study of the scientific method which develops skills for interpreting scientific findings and evaluating theories, tests and causal and statistical claims. One component deals with decision-making procedures based on these evaluations. No prerequisites. Applicable to the humanities and arts general education requirement.

PHIL 235. Decision and Game Theory (3). Fall or Spring. A survey of decision theory covering basic issues in utility theory, decision making under risk or uncertainty, game theory and social choice theory.

PHIL 240. Topics in Philosophy (3). Fall, Spring. Subject matter designated in class schedule. Primarily for students with little or no background in philosophy.

PHIL 245. Philosophy of Feminism (3). Fall or Spring. Philosophical presuppositions and specific proposals of feminists; views on sex roles, human welfare, justice and equality, rights, self-actualization, self-respect, autonomy, exploitation, oppression, freedom and liberation, reform and revolution. Applicable to the humanities and arts general education requirement.

PHIL 303. Symbolic Logic (3). Fall or Spring. Notation and proof procedures used by modern logicians to deal with special problems beyond traditional logic; propositional calculus, truth tables, predicate calculus, nature and kinds of logical proofs.

PHIL 311. History of Medieval Philosophy (3). Fall alternate years. Major philosophical positions of Middle Ages; St. Augustine through Renaissance philosophers.

PHIL 312. Political Philosophy (3). Fall or Spring. Some of the classics of political thought, including works by Hobbes, Locke, Rousseau, Smith and Marx. Topics include liberty and authority, justice and equality.

PHIL 316. Philosophy of Psychology (3). Fall or Spring. Study of philosophical underpinnings and implications of major movements in psychology, including the discovery of the unconscious, behaviorism, cognitive science, artificial intelligence and sociobiology.

PHIL 317. Philosophy of Religion (3). Fall or Spring. Nature of religion; gods and/or God; faith, revelation and religious belief; evil and righteousness; meaning of life. Readings from variety of sources, largely contemporary.

PHIL 318. Philosophy of Law (3). Fall, Spring. Philosophical foundations of legal system; essential nature of law and relation to morality; liberty, justice and legal responsibility (intention, human causality, negligence, mens rea, fault, etc.) and punishment.

PHIL 319. Philosophy of Death and Dying (3). Fall, Spring. Conceptual, metaphysical and epistemological issues related to nature of death; existential issues related to human significance of death for individual and community; normative issues related to care of dying. Applicable to the humanities and arts general education requirement.

PHIL 320. Business Ethics (3). Fall, Spring. Value conflicts that arise in business situations and philosophical ways of resolving them including issues involving the social responsibility of business people.

PHIL 321. Indian and Chinese Philosophy (3). Fall or Spring. Some non-Western philosophical traditions. Possible topics include Taoism, Confucianism, Buddhism and Vedanta; epistemology, formal inference, causality, metaphysics, mind-body relationships. Applicable to the humanities and arts and international perspective general education requirements.

PHIL 325. Socialism, Capitalism and Democracy (3). Fall or Spring. Theory behind modern capitalism, socialism and democracy. Topics include individualism, community, freedom, justice and democratic representation. Applicable to the humanities and arts general education requirement.

PHIL 327. Philosophy of Punishment (3). Fall, Spring. Basic theories of punishment and whether punishment is justified. Issues include punishment versus rehabilitation, capital punishment, the insanity defense and related issues. Applicable to the humanities and arts general education requirement.

PHIL 330. Theory of Knowledge (3). Fall or Spring. Theories of knowledge, truth, belief and evidence.

PHIL 331. Existentialism (3). Fall or Spring. Various existential themes, including the meaning of life, human freedom, the limits of reason, the meaning of death and the individual vs. society. Kierkegaard, Nietzsche, Dostoevsky, Camus, Sartre, Jaspers, Buber and others comprise the reading.

PHIL 332. Environmental Ethics (3). Fall, Spring. Critical evaluation of prevalent standards used in responding to long-standing and emerging environmental problems. Applicable to the humanities and arts general education requirement. Approved for web delivery.

PHIL 335. Philosophy of Film (3). Fall or Spring. Aesthetic theories concerning definition of film as distinctive art form; criteria for evaluation of films. Popular, documentary, art and experimental films shown in class.

PHIL 339. Meditation: Practice and Theory (3). Spring. Integrate insight (mindfulness) meditation practice with theoretical reflection about a variety of meditation techniques and practices that have been developed in diverse meditation traditions. Weekend field trip required. Extra fee.

PHIL 340. Problems in Philosophy (3). Fall, Spring. Subject matter designated in class schedule. Primarily for students with little or no background in philosophy.

PHIL 342. Medical Ethics (3). Fall, Spring. Selected topics such as genetic engineering, euthanasia, honesty with the dying and human experimentation viewed from perspective of representative ethical theories. Applicable to the humanities and arts general education requirement. Approved for web delivery.

PHIL 344. Computers and Philosophy (3). Fall, Spring. Philosophical dimensions of the impact of computers on society with emphasis on the issues of ethics and artificial intelligence. Prerequisite: CS 101, its equivalent or permission of the instructor.

PHIL 395. Workshop on Current Topics (1-4). Fall, Spring on demand. Intensive educational experience on selected topics. Typically, an all-day or similar concentrated time format is used. Requirements are usually completed within this expanded time format. May be repeated if topics differ and adviser approves.

PHIL 406. Philosophy of Language (3). Fall alternate years. Historical and contemporary theories of meaning; their use in resolving traditional philosophical controversies and in providing foundation for contemporary analytic philosophy; various interdisciplinary connections.

PHIL 411. History of Contemporary Anglo-American Philosophy (3). Fall or Spring. Major twentieth century movements in the analytic tradition, including ideal language philosophy, ordinary language philosophy and naturalized, holistic philosophy, including such philosophers as Russell, Austin, Wittgenstein, Quine, Davidson, Putnam and Rorty. Prerequisite: six hours of philosophy including PHIL 212 or PHIL 312.

PHIL 412. Contemporary Continental Philosophy (3). Fall or Spring. Major twentieth century movements in France and Germany, beginning with the phenomenology of Husserl, proceeding through Sartre and Heidegger and including philosophical hermeneutics, critical theory, the theory of communication and genealogies of values, with attention to such philosophers as Gadamer, Ricoeur and Derrida, Adorno, Habermas and Foucault. Prerequisite: six hours of philosophy including PHIL 212 or PHIL 312.

PHIL 414. Metaphysics (3). Fall or Spring; Alternate years. Survey of traditional metaphysical issues and concepts combined with in-depth treatment of some metaphysical problem(s). Prerequisites: two philosophy courses from PHIL 316, PHIL 317, PHIL 330, PHIL 344, PHIL 406, PHIL 431, PHIL 433.

PHIL 417. Skepticism and Faith (3). Fall or Spring. In-depth examination of modern challenges to religious faith and religious responses. Topics such as evolution, societal secularization, the autonomy of morals and naturalistic explanations of religion and religious experience. Prerequisites: PHIL 217 and PHIL 317; PHIL 412 is recommended. May be repeated with different topics.

PHIL 418. Topics in the Philosophy of Law (3). Fall or Spring. In-depth examination of such topics as the nature and analysis of law, legal reasoning, judicial decision, hard cases, responsibility, causation and fault, the mental element in crime, formal and material principles of justice and the legal

enforcement of morality. Prerequisites: PHIL 318 and one of PHIL 102, PHIL 320, PHIL 325, PHIL 332, PHIL 342, PHIL 425. May be repeated with different topics.

PHIL 425. Moral and Social Philosophy (3). Fall or Spring. An in-depth treatment of some theme(s) in social philosophy combined with a survey of traditional ethical theories as a background to social philosophy. Prerequisites: PHIL 102 and one of PHIL 318, PHIL 320, PHIL 325, PHIL 332, PHIL 342.

PHIL 431. Topics in Philosophy of Science (3). Fall or Spring. Content varies from year to year. Topics include: nature of scientific explanation, causality, contemporary empiricism, philosophy of biology, methods, presuppositions, concepts of behavioral sciences. May be repeated for credit. Prerequisite: three hours in PHIL and/or coursework in sciences or consent of instructor.

PHIL 432. Philosophy of Social Science (3). Fall or Spring. Methods, ideals and politics of social inquiry. Topics include the very idea of a social science, explanation, prediction and laws, problems of interpretation and meaning, the nature of rationality, reductionism, individualism and holism, and objectivity and values.

PHIL 433. Philosophy and Physics of Space and Time (3). Spring. Physical theories of space and time from philosophical, scientific and historical points of view. Topics include Zeno's paradoxes, Greek concepts of space and time, classical Newtonian world view, general ideas of modern theory of relativity and cosmology. Course presupposes high school-level mathematics only. Cross-disciplinary; cross-listed as PHYS 433.

PHIL 440. Senior Seminar (3). Fall or Spring. Intensive investigation of a single philosophical problem from a number of different perspectives. Topics vary from year to year. Open to philosophy majors with junior or senior standing, or others by permission of the instructor.

PHIL 442. Philosophy of Medicine (3). Fall or Spring. In-depth examination of selected issues in medical epistemology, philosophy of science and the philosophy of mind, drawing on the continental philosophical tradition to examine professional and social constructs and their impact on the therapeutic relationship. Prerequisites: PHIL 342, PHIL 412. May be repeated with different topics.

PHIL 445. Topics in the Philosophy of Business and Economics (3). Fall or Spring. In-depth examination of such concepts as profit and the profit motive, egoism in economic activity, the moral limits of markets and market behavior, ethical problems arising in nonprofit organizations and socialist economies, as well as truth in advertising, cover-ups and whistleblowing. Prerequisite: PHIL 312. May be repeated with different topics.

PHIL 470. Readings and Research (1-3). Fall, Spring. Supervised independent work in selected areas. Prerequisites: 12 hours of PHIL and consent of chair of department. May be repeated to six hours.

PHIL 480. Seminar in Philosophy (3). Fall, Spring. In-depth examination of one specific philosopher, philosophical movement or problem. Determined by need and interest of student. Prerequisite: three hours in PHIL (excluding PHIL 103) or consent of instructor.

#### **PHYS Physics**

PHYS 100. Physics of Natural World (3). Summer. Survey course for non-science majors. Elementary description of major physics concepts and principles with contemporary applications. Not acceptable toward physics major or minor.

PHYS 101. Basic Physics (3). Spring. Laboratory course for non-science majors. Emphasis on scientific data analysis and the meaning of scientific knowledge. Not acceptable toward physics major or minor. Two lectures and one two-hour laboratory. Applicable to the natural sciences general education requirement. Extra fee.

PHYS 180. Selected Topics in Physics (1-3). On demand. Selected topics not included in existing courses at the introductory level. Scheduling of course may be initiated by staff or students. May be repeated as different subjects are offered. Prerequisite: consent of instructor.

PHYS 201. College Physics I (5). Fall, Spring, Summer. First term of an introductory physics sequence intended for students without calculus. Motion, forces, energy, fluids, heat and wave motion. Four lecture-recitations and one two-hour laboratory. Prerequisites: algebra and trigonometry. Applicable to the natural sciences general education requirement. Extra fee.

PHYS 202. College Physics II (5). Fall, Spring, Summer. PHYS 201 continued. Sound, electricity, magnetism, electrical measurements, optics; atomic, nuclear and solid-state physics. Four lecture-recitations and one two-hour laboratory. Prerequisite: PHYS 201. Applicable to the natural sciences general education requirement. Extra fee.

PHYS 211. University Physics I (5). Fall. Introductory calculus-based physics sequence for science and engineering majors. Kinematics in one, two and three dimensions; Newtonian mechanics; gravitation; heat and thermodynamics. Four lecture-recitations and one two-hour laboratory. Corequisite: MATH 131. Applicable to the natural sciences general education requirement. Extra fee.

PHYS 212. University Physics II (5). Spring. PHYS 211 continued. Wave motion, sound, optics, electricity and magnetism. Four lecture-recitations and one two-hour laboratory. Prerequisite: PHYS 211. Corequisite: MATH 232. Applicable to the natural sciences general education requirement. Extra fee.

PHYS 270. Independent Study (1-3). On demand. Introduction to research in physics and astronomy; projects chosen in consultation with adviser. May include library and laboratory work. For lower-division students only. Prerequisite: consent of instructor.

PHYS 301. Modern Physics (3). Fall. Topics from relativity; quantum physics; nuclear, atomic and molecular physics. Three lecture-recitations. Prerequisites: PHYS 212; or PHYS 202 and MATH 232. Student must also register for PHYS 311.

PHYS 303. Electronics (3). Spring. Discussion and laboratory practice in networks, transistors, integrated circuits and associated circuitry. Two lecture-recitations and one three-hour laboratory. Prerequisite: PHYS 202 or PHYS 212. Extra fee.

PHYS 306. Thermodynamics and Statistical Physics (3). Fall alternate years. Thermodynamic laws, entropy, specific heat, kinetic theory; classical and quantum statistics. Three lecture-recitations. Prerequisites: PHYS 212; or PHYS 202 and MATH 232.

PHYS 307. Mechanics and Wave Motion (3). Spring. Mechanics of periodic systems including the driven harmonic oscillator and coupled oscillators. Fundamentals of wave motion and the propagation of waves in elastic media. Three lecture-recitations. Prerequisites: PHYS 212; or PHYS 202 and MATH 232.

PHYS 308. Optics (3). Spring alternate years. Propagation of electromagnetic radiation in vacuum and in optically isotropic media; geometrical optics;

interference, diffraction and polarization of light with selected classical applications. Selected topics in modern (quantum) optics. Three lecture-recitations. Prerequisite: PHYS 301. Student must also register for PHYS 318.

PHYS 309. Atomic and Nuclear Physics (3). Fall alternate years. Phenomenological basis of our understanding of atomic phenomena, fundamental ideas of atomic structure, structure of nuclei and basic decay processes, elementary particles. Three lecture-recitations. Prerequisite: PHYS 301.

PHYS 311. Modern Physics Laboratory (1). Fall. Laboratory work designed to accompany material presented in PHYS 301. One three-hour laboratory. Prerequisite: PHYS 202 or PHYS 212. Corequisite: PHYS 301. Extra fee.

PHYS 317. Wave Laboratory (1). Spring. Introduction to advanced experimental techniques and data analysis; laboratory investigation of wave phenomena. One three-hour laboratory. Prerequisites: PHYS 212; or PHYS 202 and MATH 232. Corequisite: PHYS 307. Extra fee.

PHYS 318. Optics Laboratory (1). Spring alternate years. Laboratory experiments in optics to accompany material in PHYS 308. One three-hour laboratory. Corequisite: PHYS 308. Extra fee.

PHYS 321. Recent Progress in Astronomy (2). Fall alternate years. Pulsar dynamics, gravitational collapse and black holes, galaxies, large-scale structure in the universe, active galaxies and quasars, cosmology. Two lecture-recitations. Prerequisites: PHYS 212; or PHYS 202 and MATH 232. Not open to students with credit for ASTR 321.

PHYS 350. Musical Acoustics (3). Spring alternate years. Nature of vibration; sound waves, sources of musical sounds-strings, air columns, percussion, voice and noise; acoustics of rooms; recording, reproduction and synthesis of sound. Not open to students majoring in physical sciences.

PHYS 360. Environmental Physics (3). Spring. Applications of physics concepts to problems in the natural world. Topics such as greenhouse effect, acid rain, ozone depletion, electromagnetic fields, solar power, nuclear energy and radiation are examined from both environmental and scientific perspectives. Prerequisites: junior standing and ENVS 101 or consent of instructor. Not acceptable toward physics major or minor in arts and sciences.

PHYS 395. Workshop on Current Topics (1-3). On demand. May be repeated to six hours. Special topics in physics or astronomy of current or unique interest to students. Does not apply to first 22 hours of minor or first 32 hours of major.

PHYS 400. Selected Topics in Physics (1-3). On demand. Selected topics not included in existing courses. Scheduling of course may be initiated by department staff or by students. May be repeated as different subjects are offered. Prerequisite: consent of instructor.

PHYS 401. Methods of Mathematical and Computational Physics I (4). Fall. Survey of basic methods of mathematical techniques applied to physics, including linear algebra, ordinary differential equations and vector calculus with emphasis on how these concepts are used in physics. Parallel development is given to numerical methods used to solve physical problems. Use of an appropriate scientific programming language is included. Four lecture-recitations. Prerequisites: PHYS 212; or PHYS 202 and MATH 232.

PHYS 402. Methods of Mathematical and Computational Physics II (3). Spring alternate years. Survey of mathematical and computational techniques for solving partial differential equations, including the wave equation, Poisson's equation

and the heat equation. Introduction to the Fourier analysis with applications and the Fast Fourier Transform algorithms and their implementation. A rudimentary treatment of special functions, as they arise in solving physical problems, will be given. Prerequisite: PHYS 401 or permission of instructor.

PHYS 403. Stellar Structure and Evolution (3). Spring alternate years. Basic data, stellar interiors, theoretical models; advanced evolutionary states: red giants, white dwarfs, neutron stars, supernovas, black holes. Prerequisites: PHYS 301 and consent of instructor. Not open to students with credit for ASTR 403.

PHYS 410. Solid State Physics (3). Spring alternate years. Continuum and atomic theories of solids, lattice vibrations, specific heat of solids, electron theory of metals and semi-conductors. Superconductivity. Three lecture-recitations. Prerequisites: PHYS 301, PHYS 307.

PHYS 416. Classical Mechanics (3). Fall alternate years. Newtonian particle mechanics in one, two and three dimensions; non-inertial reference frames. Central forces and celestial mechanics. Dynamics of a system of particles; rigid body motion. Lagrangian and Hamiltonian formulations of dynamics. Theory of small oscillations. Three lecture/recitations. Corequisite: PHYS 401.

PHYS 417. Quantum Mechanics (3). Spring alternate years. Duality of matter and radiation, state functions and interpretation. Heisenberg uncertainty principle, wave equations and principles of wave mechanics, elementary applications of Schroedinger's equation, operator methods and approximation techniques. Prerequisites: PHYS 301, PHYS 401.

PHYS 418. Electricity and Magnetism I (3). Fall alternate years. Electric and magnetic fields; Maxwell's theory of electromagnetic field with applications in propagation, absorption, reflection, transmission of radiation. Prerequisite: MATH 233. Corequisite: PHYS 401.

PHYS 419. Electricity and Magnetism II (3). Spring alternate years. PHYS 418 continued with applications to guided waves and physical optics. Relativity. Prerequisite: PHYS 418.

PHYS 428. Microcomputer Interfacing (3). Fall alternate years. Medium- and large-scale integrated circuits such as peripheral interface adapters. Integrated circuits such as UARTS and A/D converters are used to interface a microcomputer to the external world of the laboratory. One class period and two three-hour laboratories. Prerequisites: CS 217 and PHYS 202 or PHYS 212, or permission of instructor. Extra fee.

PHYS 429. Selected Topics in Microelectronics (1-3). On demand. An individual, in-depth study of a microelectronic project. Designed to integrate the introductory knowledge gained in PHYS 303 and 428 into a complete microelectronic system. Arranged. Prerequisites: PHYS 303, PHYS 428. Extra fee.

PHYS 433. Philosophy and Physics of Space and Time (3). Spring. Physical theories of space and time from philosophical, scientific and historical points of view. Topics include Zeno's paradoxes, Green's concepts of space and time, classical Newtonian world view, general ideas of modern theory of relativity and cosmology. Cross-listed as PHIL 433.

PHYS 470. Independent Study (1-3). On demand. Introduction to research in physics and astronomy; projects chosen in consultation with adviser, may include library and laboratory work. Prerequisite: consent of instructor.

PHYS 489. Cooperative Education in Physics (1-4). On demand. Work and study in physics in an industrial, commercial or government laboratory setting in an approved cooperative position. May be repeated to six hours. Written technical report required. By permission of departmental co-op director. Only three hours may be applied toward physics major or minor.

PHYS 490. Special Problems in Physics (1-3). On demand. Readings and research on recently developing topics chosen to fit needs of students.

**PHYT Physical Therapy**

PHYT 400. Gross Anatomy (5). Fall. Study of the structure and functional implications of the musculoskeletal, cardiovascular, and respiratory systems of the human body, and an introduction to the peripheral nervous system. Emphasis on the biomechanics of spine and extremity movement as it applies to the study of anatomy. Prerequisite: acceptance into the professional curriculum at MCO.

PHYT 407. Neurosciences and Clinical Correlations (3). Spring. Integrated study of structure and function of the central and peripheral nervous systems. Principles of neurophysiological and neuropathological motor and sensory function and related basic assessment skills will be emphasized. Prerequisite: PHYT 400.

PHYT 409. Analysis of Movement (3). Fall. Integrated study of applied biomechanics, kinesiology, and anatomy as they relate to the study of human movement. Focus placed on the observational skills associated with the analysis of human movement, with an emphasis on gait. Prerequisite: acceptance into the professional curriculum at MCO. Corequisite: PHYT 400.

PHYT 411. Clinical Pathophysiology (3). Fall. Integrated study of the physiology of various systems of the human body throughout the lifespan. Focus on the pathophysiology of the various systems with emphasis on clinical manifestations and their influence on client examination and strategies for health promotion. Prerequisite: PHYT 400.

PHYT 415. Foundations of Physical Therapy (3). Fall. Course addresses the role of the physical therapist and the professional socialization process. Professional codes and guides of behavior will be discussed as they relate to expectations of the graduate in the delivery of competent, ethical, legal, and sensitive health care services. Prerequisite: acceptance into professional curriculum at MCO.

PHYT 418. Scientific Inquiry (2). Fall. Exploration of the use of the scientific inquiry process as a means to enhance learning and clinical reasoning skills. Emphasis on critically reviewing the literature, using the principles of research design, and applied statistics as a foundation. Prerequisite: acceptance into professional curriculum at MCO.

PHYT 420. Health Promotion (3). Spring. Discussion of the elements of health and wellness as they relate to able-bodied clients and clients with disability. Mind-body interaction will be explored as it relates to the role of the physical therapist as health educator. Principles of nutritional and pharmacological management will be discussed in the context of maintenance of health. Prerequisite: PHYT 400. Corequisite: PHYT 411.

PHYT 425. Introduction to Examination (3). Spring. Introduction to the physical examination process. Includes the integration of anatomy, analysis of movement, health, and observation skills. Emphasis on basic examination skills. Prerequisite: PHYT 400, PHYT 409. Corequisite: PHYT 411, PHYT 420.

PHYT 440. Clinical Reasoning I (1). Fall. Introduction to the basic concepts of problem solving and critical thinking used in the delivery of physical therapy services. Includes an overview of professional decision making models and an examination of the steps associated with making clinical decisions. Prerequisite: acceptance into the professional curriculum at MCO.

PHYT 445. Teaching and Learning I (1). Fall. First of two courses designed to enhance the physical therapy student's role as an independent learner and as an educator through peer instruction and community-based education. Emphases include: theories of learning, instructional methods, and evaluation of learning. Prerequisite: acceptance into the professional curriculum at MCO.

PHYT 460. Integrated Control of Movement (3). Spring. Integrated control of movement is a broad, multidisciplinary field encompassing neuroscience, biomechanics, psychology, and other disciplines. The main focus of the course is analyzing current information regarding the "normal" control of simple movements used in daily activities. The course will utilize principles of gait and neuroscience to integrate the understanding of human movement.

PHYT 470. Independent Study (2). Spring. In-depth study of clinically related problems or topic of interest. Consent of faculty required.

PHYT 480. Seminar (1-3). Spring. In-depth exploration of selected clinical topics. Arranged.

#### **POLS Political Science**

POLS 110. American Government: Processes and Structure (3). Fall, Spring, Summer. Constitutional basis and development, political processes (parties, nominations and elections, interest groups and public opinion), federalism and institutions of national government. Applicable to the social sciences general education requirement. Approved for web delivery.

POLS 171. Introduction to Comparative Government (3). Fall, Spring, Summer. Basic concepts, approaches to and comparisons of different political systems, including political cultures, participation, interest groups, institutions and processes; essential tools and methods for the study of political systems in the world. Applicable to the social sciences and international perspective general education requirements. Approved for web delivery.

POLS 172. Introduction to International Relations (3). Fall, Spring, Summer. Historical and contemporary overview of the modern international system; governmental and nongovernmental actors influencing international relations; major issues of the post-war period. Applicable to the social sciences and international perspective general education requirements.

POLS 290. Introduction to Political Inquiry (3). Fall, Spring. Concepts and theories used by political scientists; traditional and behavioral political science; how political scientists establish and evaluate concepts and theories. Required of all majors; should be taken before any 300-level POLS course. Nonmajors must receive permission of instructor.

POLS 301. Modern Political Ideologies (3). Spring. Nature of political power, freedom, authority and terrorism as seen in ideologies of democracy, capitalism, liberalism, conservatism, communism, anarchism, socialism and fascism. Applicable to the social sciences and international perspective general education requirements.

POLS 302. American Domestic Public Policy (3). Fall, Spring, Summer. Description and analysis of environment, education, defense, civil rights, criminal justice, health, welfare and other selected contemporary policy areas and issues.

POLS 303. Introduction to Public Administration (3). Fall, Spring, Summer. American administrative system: emphasis on administrative structures and processes; relationship between elected offices and bureaucracy, notion of civil service, modes of managing administrative system. Prerequisite: POLS 110. Approved for web delivery.

POLS 304. American Political Thought (3). As reflected in colonial, Federalist, Civil War and late 19th century political thought.

POLS 325. Black Politics (3). Political behavior (such as voting and other forms of political participation) and political leadership (elected and unelected) of African Americans.

POLS 331. State and Local Government (3). Fall, Spring. Influence of culture and socioeconomic factors on state-local politics; state constitutions, municipal corporations and charters; political participation; institutions and processes; intergovernmental relations; policy issues and outcomes in state/local government with special reference to Ohio. Approved for web delivery.

POLS 335. Global Resource Politics (3). Spring. Resource-related global political problems dealing primarily with energy and food questions for policymakers and citizens concerned with political determinants of energy and food security in an interdependent world. Applicable to the social sciences general education requirement.

POLS 336. Environmental Politics and Policies (3). Fall, Spring. Environmental policy process primarily in the U.S. including agenda setting, formulation, adoption, implementation and evaluation. Political interests, governmental institutions and actors involved in environmental policy making. Focus on key environmental issues and policies.

POLS 341. Public Opinion (3). Processes of opinion formation and change, political attitudes, belief systems, socialization and the operation of public opinion processes in democracy; models of linkages between public opinion and public policies.

POLS 345. Legislative Process (3). Spring. Legislative behavior and decision making; forces involved in formation of public policy; proposed reforms of Congress. Prerequisite: POLS 110 or consent of instructor.

POLS 346. Presidency and Executive Process (3). Fall. Organization, functions and powers of office of president and vice president; roles and presidential leadership psychology.

POLS 347. Judicial Process (3). American judiciary, particularly Supreme Court, as political institution; decision-making process and interaction of courts with rest of political system.

POLS 351. Western European Politics (3). Fall. Political systems and major policy problems of selected European countries. Political culture, governmental structures, political parties and interest-group roles in policy development. Prerequisite: POLS 171 or permission of instructor. Applicable to the social sciences and international perspective general education requirements.

POLS 355. Governments and Politics of Latin America (3). Fall. Influence of cultural and socio-economic factors on politics; violence and revolution; role of major interest groups such as the military, labor, the Catholic Church; political parties and elections; institutions; focus on selected nation-states.

POLS 361. Governments and Politics of Middle East (3). Governmental and political processes of Turkey, Iran, Israel, Egypt, other selected Middle Eastern and North African political systems; major developmental problems of the area.

POLS 366. Governments and Politics of Asia (3). Representative contemporary Far Eastern and Southeast Asian political systems; how ideology, religion, militarism and other social forces (both endogenous and exogenous) have influenced the development of these policies.

POLS 372. Contemporary World Politics (3). Spring. Current global issues and problems such as the arms race, population control, disarmament and East-West, North-South rivalries are discussed and analyzed. Applicable to the social sciences and international perspective general education requirements.

POLS 374. American Foreign Policy Process (3). Fall. Nature and conduct of contemporary U.S. foreign policy, with particular emphasis on the roles that the executive and legislative branches play in the process. Secondary foci of analysis are how domestic political problems, interest groups, military alliances, technological and economic forces help shape foreign policy formation and articulation.

POLS 400. Topics in Political Science (1-3). Fall, Spring. Subject matter varies. New, one-time courses being offered experimentally. See schedule for listing. Prior completion of POLS 110 recommended.

POLS 402. Western Political Thought I (3). Classics of political philosophy of ancient and medieval periods. Major ideas and concepts of western political tradition from Plato through Middle Ages to Machiavelli. Applicable to the social sciences general education requirement.

POLS 403. Western Political Thought II (3). Classics of political philosophy of modern period. Major ideas and concepts of Western political tradition from Hobbes to Marx. Applicable to the social sciences general education requirement.

POLS 404. 20th Century Political Thought (3). Contemporary classics of political philosophy. Theories of justice and right of Rawls, Nozick, Hayek and Strauss; Berlin's pluralism; existentialism; and/or democratic theory.

POLS 405. Recent American Political Thought (3). American political ideas, ideologies, movements with fundamental social and political philosophies from Civil War to contemporary period. Prerequisite: POLS 304 or consent of instructor.

POLS 416. Constitutional Law: Powers and Relationships (3). Fall. Supreme Court cases relating to U.S. governmental structure, powers and relationships.

POLS 417. Constitution Law: Procedural Rights (3). Due process, right to counsel, search and seizure, electronic surveillance and jury trial.

POLS 418. Constitution Law: Substantive Rights (3). Spring. Freedom of speech, press and religion; equal protection of law, travel and privacy, and right to vote.

POLS 419. Jurisprudence (3). Leading theories and theorists of law; Anglo-American thought and practice.

POLS 420. Administrative Law (3). Fall. Legal aspects of the administrative process and the effect of legal principles and processes upon administrative decision making. Emphasis on the limitation of administrative discretion and the

judicial review of administrative decisions. Prerequisite: consent of instructor.

POLS 421. Bureaucratic Politics (3). The role federal bureaucracy plays in public policy process. Policy development; social and political factors that influence the administrative branch of government. Prerequisite: POLS 303 or permission of instructor.

POLS 423. Comparative Public Administration (3). Comparative study of administrative structures and processes in selected modern and modernizing political systems. Analysis includes the consideration of cultural, legal and political factors influencing the operation of bureaucratic institutions, developmental goals, and the methods of establishing and administering programs of social, economic and political development.

POLS 424. Supreme Court and Contemporary Issues (3). Spring alternate years. Selected areas of current concern in constitutional law; substantive knowledge of relevant case law, scholarly legal journals which attempt to predict outcome of future constitutional litigation. Prerequisite: POLS 417 or POLS 418.

POLS 425. Constitutional Law Advocacy (3). Spring. Substantive knowledge of one area in constitutional law; practical skills necessary for constitutional adjudication; techniques of legal research, writing appellate court briefs and appellate court advocacy. Prerequisites: POLS 416 and POLS 417, or POLS 418 and permission of instructor.

POLS 430. Local Government Management and Politics (3). Spring. Socio-economic and political factors affecting local governments with an emphasis on governmental structure, problems, and administrative mechanisms, intergovernmental relations, service delivery, performance measures, and alternatives for improving governmental policy and management. Prerequisites: POLS 303 or permission of instructor.

POLS 431. Regulatory Policy (3). Development of regulation as an instrument for correcting deficiencies of the economic market, role in achieving societal purposes, problems of regulatory practice. Prerequisite: POLS 303 or permission of instructor.

POLS 434. Gender Politics in Cross-Cultural Perspective (3). Socialization to, maintenance of and change in gender political roles; patterns of dominance and submission in cross-cultural perspective.

POLS 440. Political Parties and Voter Behavior (3). Democracy and political parties, party organization, primaries and conventions for nomination, campaigns and elections, patterns of election participation and factors affecting the voter's decision making.

POLS 443. Politics and the Mass Media (3). Political analysis of relationships between the media and the government and the effects on public policy issues and electoral campaigns.

POLS 454. Politics of Post-Communist States (3). Analysis of institutions, parties, and economic policies of the former Soviet republics and East European nations within the context of ethnic conflicts, transitions to democracy, and market-capitalism.

POLS 459. Intergovernmental Relations (3). Fall. Vertical and horizontal relations among governments in the American federal system, models and theories of federalism and intergovernmental relations (IGR), constitutional issues,

twentieth-century changes, recent developments in financing and managing federalism and IGR. Prerequisite: POLS 303 or permission of instructor.

POLS 460. Politics and Issues of World Development (3). Spring alternate years. Political and economic modernization problems; equity versus development; hunger and population; foreign aid, technology transfer and other selected topics.

POLS 470. Individual Readings (1-3). Fall, Spring. Supervised individual readings to meet student's need for extended reading in familiar areas or for exploration in fields not covered by courses. Prerequisite: consent of supervising instructor. May be repeated to nine hours.

POLS 473. International Law (3). History, nature, sources and applications; relationship between law and society at international level.

POLS 475. International Organization (3). Spring. History, organization and function of international organizations within the context of world politics. Major emphasis on United Nations and issues facing it. Prior completion of POLS 172 or POLS 372 recommended.

POLS 476. International Political Economy (3). Fall. Survey and analysis of political economy on a global scale, including review of major Marxist, realist and liberal theories and policy issues of trade, debt, investment and aid.

POLS 478. International Conflict (3). Fall. Political theories and research on the causes of war and other forms of international conflict. Analysis of escalatory processes, ethics of warfare, techniques of conflict resolution.

POLS 491. Seminar for Intern (3). Suggested for students planning internships. Survey and analysis of literature dealing with practice political experiences. Use of biographical material as sources.

POLS 492. Field Study (1-3). Fall, Spring, Summer. For students working on political internship programs and political campaigns. May be repeated to six hours.

POLS 495. Honors Seminar in Contemporary Political Science (1-8). On demand. Political science as discipline and profession; forms of political inquiry and research; scientific and methodological orientations toward values and scholarship; public and professional status of political science. Prerequisite: permission of honors committee. May be repeated to eight hours.

POLS 496. Workshop on Current Topics (1-4). On demand. Intensive educational experience on selected topics in political science. May be repeated if topics differ, on approval of adviser. No more than nine hours of POLS 496 (formerly POLS 395) will count toward a major or minor in political science.

### **POPC Popular Culture**

POPC 160. Introduction to Popular Culture (3). Summer, Fall, Spring. Basic theories and approaches to the scholarly study of popular culture, including various media, folklore, and everyday life. Applicable to the humanities and arts general education requirement. Approved for web delivery.

POPC 165. Popular Culture and Media (3). Fall, Spring, Summer. Some of the ways in which mass media (TV, film, recording industry, print, radio) have affected modern American culture. Media relationships and interactions. Applicable to the humanities and arts general education requirement. Approved for web delivery.

POPC 170. Black Popular Culture (3). Fall, Spring. Basic theories of approaches to 20th century African-American popular culture. Traces ways black popular

culture has shaped and is shaped by American society. Examines relationship of race, ethnicity, gender and class. Applicable to the cultural diversity in the United States general education requirement.

POPC 220. Introduction to Folklore and Folklife (3). Fall, Spring. Study and collecting of folklore; ballads, myths, tall tales, heroes, folk medicines, superstitions, proverbs and crafts. Applicable to the humanities and arts general education requirement.

POPC 231. Studies in Popular Culture (1-3). Study of theme, era or issue in popular culture. Subject matter designated in class schedule. May be repeated once if topics differ.

POPC 250. Introduction to Popular Film (3). Fall, Spring, Summer. Popular film as mass entertainment medium; Hollywood studios, popular film formulae, genres, relationships between popular films and movie-going audience; viewing of appropriate films. Extra fee.

POPC 260. Popular Culture Research (3). Fall or Spring. Examines different methods of popular culture research and theories on which they are based. Application of course concepts to contemporary issues in popular culture. Prerequisites: major or minor in POPC and POPC 160 or POPC 165. Required for majors and minors.

POPC 270. Introduction to Contemporary Popular Literature (3). Alternate years. Popular literary formulae, publishing industry, relationship between popular literature and reading public, functions of popular literature in society.

POPC 280. Introduction to Popular Music (3). Fall or Spring. Relationship between music world and listening-viewing audience; musical styles, trends in popular music, popular performers and entertainers and what they reveal about popular culture; appropriate music listening.

POPC 290. Television as Popular Culture (3). Fall or Spring. Relationship between popular television programming and American society; viewing of appropriate television.

POPC 300. Topics in International/Global Popular Culture (3). On demand. In-depth study of international and/or global aspects of everyday life and popular culture: consumer culture, mass media, entertainment, migration, technology, etc. Areas may include Ireland, China, Taiwan, Japan, and Canada. May be repeated to nine hours if topics differ.

POPC 320. Folktale and Legend (3). Alternate years. Intensive examination and collecting of oral narratives; theory and methods of collecting, organizing and interpreting such material as folktales, urban belief tales, supernatural legends, narrative jokes, tall tales, etc.; analysis of folk mythology.

POPC 321. Folklife and Material Culture (3). Alternate years. Study and analysis of nonverbal folklife; theory and methods of analysis of such forms of expressive folk culture as arts, crafts, architecture, foodways, festivals, customs and folk rituals; emphasis on modes of description and analysis commonly used by folklorists to understand and explain such materials.

POPC 325. The Folk Group/Folk Region (3). Alternate years. Intensive study of a single folk group or the folklore of a specific region (e.g., Women's Folk Culture, Folklore of the Great Lakes Region, etc.). Emphasis on the function of various types of folklore within the group or region. May be repeated once if content clearly differs.

POPC 350. Advanced Studies in Popular Film (3). Fall or Spring. In-depth study of particular aspect of popular film. Topics may focus on a single genre, director, historical period, or studio. Appropriate films will be viewed. May be repeated three times if topics differ. Two-hour lecture, two-hour lab. Extra fee.

POPC 365. Youth and Popular Culture (3). Spring, alternate years. History, theory, and perceptions of youth cultures and subcultures. Young peoples' distinctive roles as audience, producers, and consumers of popular cultures. Topics may include comparative youth cultures, music, new media, fashion, and everyday life. No prerequisite.

POPC 370. History of Popular Literature (3). Alternate years. Detective, science fiction, western, mystery, best sellers, poetry, magazine fiction. Prerequisite: any 200-level literature course or permission of instructor.

POPC 380. Contexts of Popular Music (3). Alternate years. In-depth investigation into single aspect of popular music: specific popular music genres, specific musical themes, popular music industry, etc. May be repeated to nine hours if topics differ. Prerequisite: POPC 280.

POPC 395. Workshop on Current Topics (1-3). Intensive educational experience on selected topics. Typically, an all-day or similar concentrated time format. Requirements usually completed within expanded time format. May be repeated if topics differ, on approval of adviser.

POPC 424. Topics In Folklore Genres (3). Alternate years. Intensive study and collecting of a single folk genre or distinctive type of folk materials (e.g., American Folk Music, Ethnic Foodways in America, The Urban Belief Tale, etc.). Emphasis on theory and method of collection and analysis. May be repeated once if content clearly differs.

POPC 426. Popular Entertainments (3). Spring, alternate years. Cultural theories applied to popular entertainment, leisure activities, and events, past and present, such as amusement parks, concerts, fandom, the internet, and nightlife.

POPC 460. Popular Culture Advanced Studies (3). In-depth study of particular problem: development of hero in popular arts, cultural analysis of popular film, cultural analysis of popular music, etc. May be repeated once if subject matter is different.

POPC 470. Studies in Popular Literature (3). In-depth study of a particular aspect of popular literature such as by genre (horror, science fiction, comic books, romance), author, or historical period. May be repeated once if topics clearly differ. Prerequisite: any 200-level literature course or permission of instructor.

POPC 480. Senior Seminar Popular Culture (3). Fall. Seminar for seniors in POPC program. Selected topics approached from several points of view. Prerequisites: senior standing and major or minor in POPC, junior standing with permission of department.

POPC 485. Fieldwork in Folklore Studies (2). Supervised independent collecting project intended as a senior seminar. Advanced students, under close supervision of one or more faculty, develop and carry out intensive exercise in collecting a specific form of folk material. POPC 480 may be substituted when appropriate.

POPC 490. Problems in Popular Culture (1-3). For advanced student. Independent study. Prerequisites: six hours of POPC courses and consent of department chair

and instructor by 12th week of semester preceding the term in which the course is to be taken. May be repeated to eight hours.

### **PSYC Psychology**

PSYC 101. General Psychology (4). Fall, Spring, Summer. Scientific approaches to the study of behavior of organisms. Application to personal and social behavior. Applicable to the social sciences general education requirement. Approved for web delivery.

PSYC 240. General Seminar (1-3). Fall, Spring. Specific content areas offered depends on demand and interest of staff. May be repeated twice. Prerequisite: consent of instructor.

PSYC 270. Quantitative Methods I (4). Fall, Spring, Summer. Principles of measurement. Quantitative analyses of behavioral measures, including measures of typicality, individual differences, correlational methods and tests of significance. Three lectures hours; two laboratory hours. Prerequisites: PSYC 101 and MATH 120 or MATH 122 (or their equivalents) or consent of instructor.

PSYC 290. Introduction to Laboratory Methods in Psychology (4). Fall, Spring. Introduction to research methods used in laboratory and natural settings. Includes planning the research, collecting and interpreting the data and communicating the results in both oral and written forms. Three lecture hours; two laboratory hours. Prerequisites: PSYC 101, PSYC 270.

PSYC 302. Introduction to Cognitive Science: Minds and Brains (3). Fall, Spring. Introduction to the study of higher mental processes. The course highlights the wide range of topics covered in the field, including memory, perception, language, learning, and thinking. It also introduces approaches to these issues, including experimental psychology, cognitive neuroscience, and computer modeling. Prerequisite: PSYC 101 or permission of instructor.

PSYC 303. Psychology of Child Development (3). Fall, Spring. Major concepts, theories and principles of child development. Coverage is from conception until adolescence. Prerequisite: PSYC 101.

PSYC 304. Psychology of Adolescent Development (2). On demand. Major concepts, theories and principles of adolescent development. Prerequisite: PSYC 101.

PSYC 305. Psychology of Personality Adjustment (2). Problems of personal adjustment. Related problems of theory and measurement of personality. Prerequisite: PSYC 101. Approved for web delivery.

PSYC 306. Psychology of Gender (3). Psychological characteristics of women and men: personality, adjustment, identity formation, intellectual processes, sexuality; theories and data on gender development.

PSYC 307. Human Sexuality (3). Fall, Spring. Survey of the relationship of biological, psychological, cultural and historical factors to typical and atypical sexual attitudes and behaviors. Prerequisite: PSYC 101, SOC 101 or BIOL 104.

PSYC 308. Introduction to Clinical Psychology (3). Models and roles associated with delivery of mental health services; major conceptions of psychological assessment and treatment. Prerequisite: PSYC 101.

PSYC 309. Psychology of Adult Development and Aging (3). Discussion of major theories of adult development; description of how biological, cognitive, personality, and social-psychological processes interact to produce development;

emphasis on seeing how these processes occur in adults' everyday lives.  
Prerequisite: PSYC 101.

PSYC 310. Lifespan Developmental Psychology (3). Fall. Research and theories of human development across the entire lifespan. Discussion of how biological, cognitive, and social processes affect human development from conception to death. Prerequisite: PSYC 101.

PSYC 311. Social Psychology (3). Fall, Spring, Summer. Social behavior covering theoretical issues and recent empirical findings: social influence and conformity processes, attitudes and attitude change, interpersonal attraction, social perception, group processes, sexual behavior, environmental influences on social behavior. Prerequisite: PSYC 101 or SOC 101.

PSYC 313. Research in Social Psychology (4). Field and laboratory research techniques in social psychology, attitude change, conformity, attraction, environmental effects on social behavior, aggression, group processes. Three lecture hours; two laboratory hours. This course can be applied toward satisfying the laboratory requirement of the psychology major. Prerequisites: PSYC 270, PSYC 290, PSYC 311. Extra fee.

PSYC 320. Conditioning (4). Classical conditioning and instrumental learning from empirical and theoretical point of view. Three lecture hours; two laboratory hours. This course can be applied towards satisfying the laboratory requirement of the psychology major. Prerequisites: PSYC 270, PSYC 290. Extra fee.

PSYC 321. Cognitive Psychology I: Learning and Memory (4). Principles and theories of human learning and memory, applied to the acquisition of knowledge and skills. Three lecture hours; two laboratory hours. This course can be applied toward satisfying the laboratory requirement of the psychology major. Prerequisites: PSYC 270, PSYC 290. Extra fee.

PSYC 322. Cognitive Psychology II: Thinking and Problem Solving (4). Theory and research on the nature of human thinking, problem solving, reasoning, concept formation, and language. Three lecture hours; two laboratory hours. This course can be applied toward satisfying the laboratory requirement of the psychology major. Prerequisites: PSYC 270, PSYC 290. Extra fee.

PSYC 328. Psychophysiology (4). Fall, Spring. Laboratory course in psychophysiology; relationship between psychological states and physiological responses in humans; conditioning of autonomic responses, orienting responses, psychosomatic relationships and biofeedback, detection of deception. Four lecture hours, laboratory by arrangement. This course can be applied toward satisfying the laboratory requirement of the psychology major. Prerequisites: PSYC 270, PSYC 290. Extra fee.

PSYC 330. Introduction to Neuroscience (3). Fall. Survey of modern views of the brain and exploration of the relationship between brain, behavior and the mind. Course examines how brain works and its important role in understanding psychology. No prerequisite.

PSYC 331. Psychopharmacology and Clinical Neuroscience (3). Examines relationship between brain chemistry and drugs. Emphasis on interaction of drugs with the brain, how drugs are used in treatment of psychological disorders and drug abuse. Prerequisite: PSYC 101 or consent of instructor. PSYC 330 strongly recommended.

PSYC 332. Neuroscience of Emotions and Motivations (4). Biological causes of motivated behaviors such as sleep, hunger, thirst, fear, aggression, and sexual

behavior; how motivated behaviors and related emotional states are organized in brain, as elucidated by electrical and chemical stimulation and ablation of living brain. Three lecture hours, two laboratory hours. This course can be applied toward satisfying the laboratory requirement of the psychology major. Prerequisites: PSYC 270 and PSYC 290, or consent of instructor. PSYC 330 strongly recommended but not required.

PSYC 333. Cognitive Neuroscience (4). Brief review of basic neuroscience principles followed by examination of relationship between brain mechanisms and complex cognitive functions such as learning and memory, language, spatial maps, and problem solving. Three lecture hours; two laboratory hours. This course can be applied toward satisfying the laboratory requirement of the psychology major. Prerequisites: PSYC 101, PSYC 270 and PSYC 290, or consent of instructor. PSYC 330 strongly recommended but not required. Extra fee.

PSYC 334. Behavioral and Neural Genetics (3). The importance of genes and environment in behavioral actions has been debated for many years. Course examines relationship between heredity and behavior with particular interest in the role of the brain. Prerequisite: PSYC 101 or consent of instructor. PSYC 330 strongly recommended.

PSYC 335. Psychoneuroendocrinology (3). The importance of hormones in controlling behavioral and psychological tendencies has been discussed for many years. Course examines relationship between the major hormonal secretions of the body and consequences for psychobehavioral integration. Prerequisite: PSYC 101 or consent of instructor. PSYC 330 strongly recommended.

PSYC 350. Survey of Industrial and Organizational Psychology (3). Broad-based survey of the various content areas of industrial (e.g., selection, appraisal) and organizational (e.g., motivation, leadership) psychology. Underlying psychological principles that influence human behavior in the workplace are discussed.

PSYC 352. Quality of Work Life (3). Impact of organizational environments on individuals and individual behavior. Topics include job design, leadership, organizational climate, job satisfaction and work motivation. Prerequisite: PSYC 270 or consent of instructor.

PSYC 354. Survey of Human Factors Psychology (3). Emphasis on the design, measurement and evaluation of human and machine performance and productivity. Assessment of factors related to training, efficiency and safety. Prerequisites: PSYC 270 and one other course in PSYC or consent of instructor.

PSYC 360. Psychology of Language (3). Fall, Spring. The course introduces the wide range of abilities involved in knowing and using language, and considers spoken and signed languages (like ASL) and animal communication. Topics include development, comprehension and production in both normal and disrupted cases, and breakdown. Prerequisite: Permission of the instructor or one of the following: PSYC 101, CDIS 223, CDIS 224, CDIS 225, ENG 290 or ENG 380.

PSYC 370. Quantitative Methods II (4). On demand. Analysis of variance and other multivariate methods for analyzing behavioral measurements. This course cannot be applied toward satisfying the laboratory requirement of the psychology major. Prerequisite: PSYC 270.

PSYC 381. Sensation and Perception (4). Historical introduction to sensory and cognitive processes that underlie our experience of objects, events, and their relationships. Emphasis on visual and auditory perceptual systems. Three lecture hours; two laboratory hours. This course can be applied toward satisfying the

laboratory requirement of the psychology major. Prerequisites: PSYC 270, PSYC 290. Extra fee.

PSYC 395. Workshop on Current Topics (1-5). On demand. Intensive educational experience on selected topics. Typically an all-day or similar concentrated format. Requirements usually completed within time format. May be repeated on approval of adviser.

PSYC 403. Personality Theory (3). Scientific constructs in personality theory; contemporary theories with historical antecedents; assessment of relationship to general psychology. Prerequisite: eight hours in PSYC.

PSYC 405. Psychology of Abnormal Behavior (3). Fall, Spring, Summer. Data and concepts used in understanding, labeling and modifying deviant behavior. Prerequisite: PSYC 101.

PSYC 406. Behavior Pathology in Children (3). Major behavioral disorders of childhood: description, etiological implications, treatment issues, approaches and problems, and related research. Prerequisite: PSYC 101 or consent of instructor.

PSYC 415. Psychology of Religion and Spirituality (3). Religion and spirituality from a psychological perspective. Religion and motivation, development, conversion, altruism, coping, mental health, psychotherapy. Prerequisite: PSYC 101.

PSYC 425. Community Mental Health (3). Development, concepts and current models in community mental health; individual and system-centered approaches that promote health and prevent psychological maladjustment; federal, state and county programs. Prerequisite: PSYC 101 or consent of instructor.

PSYC 440. General Seminar (1-4). Specific content areas offered depends on demand and interest of staff. May be repeated three times. Prerequisite: consent of instructor. Approved for web delivery.

PSYC 452. Personnel Selection (3). Methods of selection and assessment in industrial and other organizations. Includes recruitment, hiring, promotion, etc. Compliance with fair employment and equal employment opportunity regulations. Prerequisites: PSYC 101 and PSYC 270 or STAT 211 or equivalent.

PSYC 454. Interviewing (3). Laboratory exercises in administering and responding to interviews differing in structure, behavior, decisions and interrelationships within interviews, validity and reduction of bias. Prerequisite: PSYC 101.

PSYC 455. Stress Factors of Work (3). Sources and effects of psychological stress at work and research on stress reduction. Topics include perceived work loads, role demands and ambiguities, job involvement and career stresses such as those in dual-career families. Prerequisite: PSYC 101.

PSYC 460. Introduction to Psychological Testing (3). Theory and methods of measuring human behavior. Basic measurement principles and applications; representative standardized tests of intelligence, interest, aptitude and personality. Prerequisites: PSYC 101 and PSYC 270 or equivalent.

PSYC 489. Internship (1-3). Fall, Spring, Summer. Supervised field experience in an applied psychology setting. Credit not applicable to psychology major or minor. May be repeated to six hours. Prerequisite: junior standing and departmental permission. Graded S/U.

PSYC 490. Special Problems in Psychology (1-3). Fall, Spring, Summer. Supervised independent minor research or intensive reading on selected problems. No student may register for course without written approval of staff member concerned. May be repeated to six hours. Prerequisite: seven hours of psychology. Graded S/U.

PSYC 495H. Senior Honors Seminar (3). Fall. Seminar in general psychology for senior major. Student required to plan and carry out research project under direction of faculty member. Prerequisite: senior major, approval by department undergraduate committee.

PSYC 496H. Senior Honors Seminar (3). Spring. Seminar in general psychology for senior major. Student required to plan and carry out research project under direction of faculty member. Prerequisite: senior major, approval by department undergraduate committee.

### **PUBH Public Health**

PUBH 301. International Health (3). Fall, Spring. Significant health problems affecting populations in various parts of the world. Focus on integration of disease patterns with geographic areas and cultural practices; discusses contemporary issues in international health. Applicable to the social sciences and international perspective general education requirements.

PUBH 302. Applied International Health (3). Summer. Examine health delivery methods and systems in various parts of the world. Focus on the application of material from PUBH 301 with geographic area and cultural practices. Discuss contemporary issues in international health particular to the country being visited. Work on a project to improve the health delivery capability in the region being visited. May be repeated once.

PUBH 320. Introduction to Public Health (3). Fall, Spring. Explore social, economic, environmental and cultural influences on community health issues facing the Nation in the 21st Century. Emphasizes an interdisciplinary health team approach and innovative population-based strategies that foster and support healthier communities. No prerequisites. Graded. Applicable to the social sciences general education requirement.

PUBH 330. Research Methods in Public and Allied Health (3). Fall, Spring. Introduction to research methods within the context of health services. Emphasis on conceptual understanding of scientific reasoning, research design, data collection methods, analysis, interpretation, and ethical standards in research. Lecture format. Prerequisites: junior standing, MATH 115. Approved for web delivery.

PUBH 340. Introduction to Human Diseases (3). This course provides a basic understanding of human disease occurrence, etiology, pathophysiologic processes, progression and management with an emphasis on significant causes of death and disability in the US adult population. Prerequisite: BIOL 332.

PUBH 402. Issues in International Health (3). Fall term. Course examines current issues and trends that affect international health, including delivery systems in other countries, and examines a variety of environmental, economic, and political factors that play a role in the transmission and treatment of human diseases. Prerequisite: senior status or consent of instructor.

PUBH 480. Seminar in Public Health (1-4). On demand. Systematic study of selected topics in public health. May be repeated if topics differ. Prerequisite: consent of instructor.

PUBH 481. Independent Study in Public Health (1-4). On demand. Supervised independent completion of an individual or group activity or research project,

other than readings, on a specialized topic related to public health. May be repeated if topics differ. Prerequisite: consent of instructor.

PUBH 482. Directed Research in Public Health (3). On demand. Individualized instruction in research for selected areas or topics in public health. May be repeated if topics differ. Prerequisite: consent of instructor.

PUBH 483. Internship in Public Health (3). On demand. Supervised internship experience in public health. May be repeated if topics differ. Prerequisite: consent of instructor.

#### **QS Quality Systems**

QS 326. Data-based Quality Improvement I (3). Spring. Data-based systems for improvement including statistical process control using variable and attribute data, capability measurement analysis, and data gathering as a total quality system for lean manufacturing and non-manufacturing environments. Team-based project configuring portfolio-based on ISO/QS 9000 rubrics. Prerequisite: STAT 200 or higher. Approved for web delivery.

QS 327. Process and Productivity Documentation III (3). Fall. Documentation-based quality improvement systems applied for variation and waste reduction and productivity enhancement for lean manufacturing and non-manufacturing environments. Team-based project configuring portfolio based on ISO/QS 9000 rubrics. Prerequisite: STAT 200 or higher. Approved for web delivery.

QS 426. Quality Change Services II (3). Summer. Quality environment for change and improvement, emphasizing technological and cultural issues associated with servicing customers from a supplier perspective in both manufacturing and non-manufacturing circumstances. Team-based project configuring portfolio based on ISO/QS 9000 rubrics. Approved for web delivery.

QS 427. Synchronous Quality Planning II (3). Summer. Planning and developing new product while doing existing quality responsibilities via mature data and documentation. Culminates in designed experiment, reliability improvements or other manufacturing or non-manufacturing change plans. Team-based project configuring portfolio based on ISO/QS 9000 rubrics. Prerequisites: QS 326, QS 327, QS 426. Approved for web delivery.

#### **RC Respiratory Care Technology**

RC 105. Introduction to Respiratory Care (2). Survey of respiratory care (RC) practice in an evolving health care delivery system. Credentialing practices, licensing practices, accreditation organizations, other professional agency influences impacting RC. Topics include legal implications of RC; patient safety, communication and record keeping; structure and organization of RC services; educational programs for RC personnel; role relationships in health care environments. Offered at Firelands only. Approved for web delivery.

RC 120. Principles of Respiratory Care I (3). Basic scientific principles of gases, humidity, aerosols and fluid flow as applied to respiratory care. Devices for measuring oxygen levels and regulating pressure and flow of therapeutic gases, as well as equipment for delivering humidity and medical aerosols. Therapeutic application of respiratory care equipment. Basic patient care and assessment. Medical terminology. Two hours of lecture and three hours of lab. Prerequisite: Admission into program. Offered at Firelands only. Extra fee.

RC 121. Principles of Respiratory Care II (3). Introduction to cardiopulmonary disease. Patient assessment, hyperinflation therapy, bronchopulmonary hygiene. Isolation procedures. Pulmonary function testing. Sterilization and processing of respiratory equipment. Two hours of lecture and three hours of lab.

Prerequisites: AHTH 130 or BIOL 314/BIOL 315, and CHEM 109/CHEM 110. Offered at Firelands only. Extra fee.

RC 151. Respiratory Care Directed Practice (2). Includes basic respiratory skills, infection control, isolation, equipment processing, patient assessment, charting, oxygen therapy, aerosol administration, bronchiopulmonary hygiene, hyperinflation modalities and CPR. Minimum of 150 hours contact time.

Prerequisites: RC 120, AHTH 130 or BIOL 314/ BIOL 315, CHEM 109/ CHEM 110, or permission of instructor. Corequisite: RC 121. Offered at Firelands only.

RC 202. Cardiopulmonary/Renal Anatomy and Physiology (3). Anatomy and physiology of respiratory, cardiovascular, renal systems in depth. Ventilatory mechanics, pulmonary functions, control of respiration, gas diffusion, transport and exchange, acid-based balance, fluid and electrolyte balance, blood gas interpretation. Two hours lecture, two hours recitation. Prerequisite: RC 120, AHTH 131 or BIOL 331, and CHEM 109/CHEM 110 or permission of instructor. Corequisite: BIOL 332 (if no credit for AHTH 131). Offered at Firelands only.

RC 203. Pulmonary Pathophysiology (3). Fall or Spring. Disease terminology and basic pathophysiological processes common to organ system disease. Common cardiopulmonary disorders with respect to etiology, pathology, pathophysiology, clinical manifestations, diagnosis (including radiological assessment of the chest) treatment and prognosis. Prerequisite: Program matriculation or permission of instructor. Offered at Firelands only.

RC 221. Respiratory Critical Care Procedures (4). Manual resuscitators, airway management, arterial sampling and analysis, quality control procedures, non-invasive gas monitoring. Mechanical ventilation. Prerequisite: RC 121, RC 151, AHTH 131 or BIOL 331 and BIOL 332 or permission of instructor. Corequisite: RC 252. Three hours lecture, three hours lab. Offered at Firelands only. Extra fee.

RC 222. Principles of Respiratory Care III (3). Fall or Spring. Advanced patient assessment, diagnostic techniques, and physiological monitoring. Topics include: ECG interpretation, cardiopulmonary diagnostics, clinical laboratory studies, nutritional assessment, ventilator management, ACLS essentials, pulmonary rehabilitation, respiratory home care. Two hours of lecture, two hours of lab per week. Prerequisite: Program matriculation. Offered at Firelands only.

RC 240. Neonatal and Pediatric Respiratory Care (2). Fall or Spring. Survey of neonatal and pediatric respiratory care with emphasis on assessment, monitoring, diagnostic, and management techniques. Fetal/neonatal transition, gestational development, resuscitation, extra corporeal membrane oxygenation, pulmonary and cardiac disorders, parent education and home care are included. Prerequisites: Program matriculation or permission of instructor. Offered at Firelands only.

RC 251. Directed Practice of Respiratory Care (3). Includes basic respiratory skills, infection control, isolation, equipment processing, patient assessment, charting, oxygen therapy, aerosol administration, bronchiopulmonary hygiene, hyperinflation modalities, artificial airway management, suctioning techniques, noninvasive monitoring, PFTs, ABGs, and CPR. Minimum of 225 hours contact time. Prerequisites: All pre-professional requirements for respiratory care and permission of instructor. Credit can not be earned for RC 151 and RC 252, along with RC 251. Offered at Firelands only.

RC 252. Respiratory Care Directed Practice (2). Summer. Introduction to mechanical ventilators and the continuation of prior procedures with the addition of artificial airway management, suctioning techniques, noninvasive monitoring, PFTs, and ABGs (arteriotomy, analysis, and interpretation). Minimum of 150 hours contact time. Prerequisites: RC 121 and RC 151. Corequisite: RC 221. Offered at Firelands only.

RC 253. Respiratory Care Directed Practice (4). Fall. Continuation of procedures with the addition of mechanical ventilator management, neonatal and pediatric respiratory care. Minimum of 300 hours contact time. Prerequisites: RC 221 and RC 252. Corequisite: RC 222. Offered at Firelands only.

RC 254. Respiratory Care Directed Practice (4). Spring. Continuation of procedures with the addition of specialized rotations in the areas of cardiopulmonary rehabilitation, cardiopulmonary diagnostics, physician rounds, management, hospice, polysomnography, radiology, long term care, and home care. Minimum of 300 hours contact time. Prerequisites: All required respiratory care courses. Corequisite: RC 260. Offered at Firelands only.

RC 260. Cases and Reviews in Respiratory Care (2). Development of general critical thinking skills: interpretation, analysis, inference, explanation, evaluation and self-regulation with respiratory care application. Focus is on development and modification of respiratory care plans using clinical practice guidelines. Designed also to enhance success on clinical simulation examinations. May be repeated to six hours. Prerequisite: must meet program matriculation standards or permission of instructor. Corequisite: RC 254. Offered at Firelands only.

RC 261. Respiratory Care Directed Practice (2). Spring. Continuation of procedures with the addition of specialized rotations in the areas of cardiopulmonary rehabilitation, cardiopulmonary diagnostics, physician rounds, management, hospice, polysomnography, radiology, long term care, and home care. Introduction to mechanical ventilation. Minimum of 150 hours contact time. Prerequisites: RC 121 and RC 251. Corequisite: RC 221. Offered at Firelands only.

RC 271. Respiratory Care Directed Practice (2). Spring. Continuation of procedures with the addition of mechanical ventilator management. Minimum of 150 hours contact time. Prerequisites: RC 221 and RC 261. Corequisite: RC 222. Offered at Firelands only.

RC 281. Respiratory Care Directed Practice (4). Summer. Continuation of procedures with the addition of neonatal and pediatric respiratory care. Minimum of 300 hours contact time. Prerequisites: RC 271 and RC 222. Corequisite: RC 260. Offered at Firelands only.

RC 290. Special Topics in Respiratory Care (1-3). Special topics or issues in respiratory care or cardiopulmonary-related topics which may be of current interest to practitioners. May be repeated to six hours if topics differ. Prerequisite: for practicing respiratory care professionals or permission of instructor. Offered at Firelands only.

#### **REHB Rehabilitation Counseling**

REHB 401. Introduction to Rehabilitation Counseling (3). Characteristics and principles of the rehabilitation process; disabilities and agencies serving the disabled.

#### **RESC Residential Center**

RESC 200. Field Experiences (1). Fall, Spring. Community-based field experiences tied to core courses for Chapman Community. Required of all Chapman first year students. Includes films, exhibits, concerts, debates, panel discussions, art events, speakers, field trips, and community service learning. May be repeated.

RESC 201. Asking the Right Questions (3). Spring. Applies critical thinking skills to arguments, values, and social controversies. Students evaluate reasoning problems caused by ambiguous language, faulty assumptions, misleading

evidence, logical fallacies, and misleading analogies and metaphors. Applicable to the social sciences general education requirement.

RESC 205. Studies in the Social Sciences (3). Fall, Spring. Integrated study of the social sciences and introduction to the scientific study of the individual, society, and human behavior. Students engage in social science research at the same time that they study nature, history, and products of the social sciences. Applicable to the social sciences general education requirement.

RESC 210. Journeys of the Imagination (3). Fall. Introduction to nature of aesthetic inquiry through experiences in specific art events (dance, music, art, theatre, film, poetry), discussion and reflection with faculty from a variety of disciplines. Applicable to the humanities and arts general education requirement. Extra fee.

RESC 220. Journeys into Science (3). Spring. Introduction to how science functions and grows, how to retrieve and understand scientific information, how science is used to solve human problems and make decisions, the capabilities and limitations of science and some of the accomplishments in science since the 16th century. Applicable to the natural sciences general education requirement. Extra fee.

RESC 470. Independent Study (1-3). Fall, Spring, Summer. For students who want to conduct intensive study of selected problems related to goals of Chapman Community. For undergraduate credit only. Prerequisite: consent of director of Chapman Community. May be repeated up to six credit hours.

#### **ROML Romance Languages**

ROML 200. European and Latin American Cinema (3). Films of cultural and literary significance from Mediterranean and Latin American countries seen through study of selected topics, themes or movements. Taught in English. Includes viewing of films with subtitles. Extra fee.

ROML 220. African Literature (3). Fall. Creative and Critical writing in the English language by writers of African descent. Also writers of the Caribbean. Credit allowed for only one of ROML 220 or ETHN 220. Applicable to the humanities and arts and international perspective general education requirements.

ROML 470. Readings in Romance Languages and Literature (1-3). Independent reading for advanced students wishing to conduct comparative study in particular period, author or authors, problem or genre. Prerequisites: consent of chair of department and instructor.

ROML 495. Literary Translation (3). Translation into English of poems and short prose works of student's choice, with advice and consent of instructor. From French, Spanish, Italian and Portuguese. Open to majors, minors and graduate students in French and in creative writing and graduate students in Spanish. Prerequisite: consent of instructor.

#### **RTD Recreation and Tourism**

RTD 190. Recreation Leadership (3). Fall, Spring. Recreation activity analysis and development; leadership theories, styles and techniques with application to the needs and interests of various populations.

RTD 210. Major Concepts in Recreation (3). Fall, Spring. Philosophical concepts and historical foundations; personal values of recreation; economic impact; leisure service delivery system and professional leadership.

RTD 215. Introduction to Travel and Tourism (3). Fall and Spring. Overview of the travel industry; employment opportunities, professional preparation; trends in travel; tourism data; issues in travel and tourism. Prerequisite: RTD 190 or RTD 210 or consent of instructor.

RTD 260. Leisure Services for the Older Adult (3). Fall, Spring. Characteristics of older adults; therapeutic benefits of recreation; major services and settings; program planning and administrative concerns; field visits.

RTD 304. Outdoor Recreation (3). Summer. Outdoor recreation resources; government management policies; private organizations and enterprise; legal, economic and political impacts; human behavioral patterns.

RTD 315. Program Planning in Travel and Tourism (3). Fall, Spring, Summer. Overview of the travel industry; employment opportunities, professional preparation; trends in travel; tourism data; issues in travel and tourism. Prerequisite: Recreation or Tourism major, RTD 190 and RTD 210 or RTD 215, or consent of instructor. Approved for web delivery.

RTD 325. Resort, Convention and Tourism Agency Administration (3). Fall, Spring. Exploration of analytical framework for management strategies unique to travel and tourism industry. Analysis of structure and function for integration of services. Prerequisites: Tourism or Recreation major, RTD 215, MGMT 305 or ECON 202 or consent of instructor.

RTD 380. Concepts and Techniques in Outdoor Education (4). Summer. Outdoor education through school curricula, interpretive services, recreation agencies and community action; philosophical bases; identification and utilization of resources; the methods associated with the learning process; field-based experiences.

RTD 384. Organization and Administration of Leisure Services (3). Fall, Spring. Basic concepts of administration, personnel management, fiscal management, public relations techniques, motivation theory, grant writing and fund raising, marketing, legal aspects of administration; budget proposal preparation and development of employment seeking skills. Prerequisites: RTD 190, RTD 210 and 30 hours. Approved for web delivery.

RTD 385. Recreation Program Development (3). Fall, Spring. Principles of program planning, organization and administration; operation of areas and facilities; current practices in publicity and public relations; supervision of program and staff; tournament scheduling; program budgeting. Prerequisites: RTD 190, RTD 210 and 30 hours.

RTD 386. Internship Preparation (1). Fall, Spring. Comparative analysis of leisure services and their roles in society with focus on personal and professional development. Prerequisites: recreation major and 60 semester credit hours.

RTD 387. Practicum: Leadership and Programming (1-5). Fall, Spring, Summer. Application of leadership and program theory to field setting. May be repeated to a maximum of six hours. Prerequisites: 1) Recreation major, RTD 190, RTD 210, RTD 385, 2.5 GPA and approval of advisor or 2) Tourism major, RTD 190 or RTD 210, RTD 215, RTD 315, 2.5 GPA, and approval of advisor. Extra fee.

RTD 395. Workshop in Current Topics (1-3). On demand. Intensive educational experience on selected topics related to recreation and tourism.

RTD 415. Evaluation and Assessment of Planning Strategies for Destination Travel and Tourism (3). Fall. Conceptual framework for planning strategies unique to

travel and tourism industry. Analysis of methods and techniques with emphasis on tracking and conversion studies. Prerequisites: 1) Recreation or Tourism major, 2) RTD 325, 3) RTD 387, 4) MKT 300 or GEOG 342 or GEOG 343 or GEOG 346 or GEOG 347 or GEOG 349, and 5) 2.5 GPA; or consent of instructor.

RTD 470. Independent Study (1-3). Fall, Spring, Summer. In-depth project of significance to the student. Credit allocation by project supervisor and approval by chair prior to registration. Prerequisite: permission of instructor.

RTD 482. Evaluation of Recreation Services (3). Fall, Spring. Methods, techniques and application of evaluation processes. Prerequisites: RTD 384, RTD 385, recreation major or minor, or consent of instructor.

RTD 483. Recreation Areas and Facilities (3). Fall, Spring. Planning and design principles; acquisition, development, construction and maintenance of specific types of recreation areas and facilities. Prerequisites: 1) Recreation major or minor, 2.5 GPA, RTD 387, RTD 384 and RTD 385; or 2) Tourism major, 2.5 GPA, RTD 387, RTD 315 and RTD 325; or 3) consent of instructor.

RTD 484. Contemporary Issues in Tourism (3). Fall, Summer. Seminar in current issues of tourism. Prerequisites: 1) Recreation major or Tourism major, 2) 2.5 GPA, 3) RTD 315, 4) RTD 325, and 5) RTD 387; or consent of instructor. Approved for web delivery.

RTD 487. Practicum: Supervision and Administration (1-5). Fall, Spring, Summer. Application of program, supervision and administration theory to field setting; may be repeated to maximum of six hours. Prerequisites: 1) Recreation or Tourism major, 2) 2.5 GPA, 3) RTD 387, and 4) approval of advisor; or consent of instructor. Extra fee.

RTD 488. Internship (15). Fall, Spring, Summer. A concentrated professional experience for students preparing for a career in recreation. Prerequisites: 1) Recreation major, 2.5 GPA, RTD 384, RTD 385, RTD 386, RTD 387, and approval of advisor; or 2) Tourism major, 2.5 GPA, RTD 325, RTD 387, RTD 487, RTD 415 or RTD 483, and approval of advisor. Extra fee.

### **RUSN Russian**

RUSN 101. Elementary Language and Culture I (4). Introduction to the Russian language in its cultural and social context with emphasis on speaking, listening and reading skills. Four class periods and laboratory practice each week. Applicable to the humanities and arts and international perspective general education requirements.

RUSN 102. Elementary Language and Culture II (4). RUSN 101 continued. Four class periods and laboratory practice each week. Increased use of authentic reading materials. Completion of elementary grammar study. Prerequisite: RUSN 101 or by placement. Applicable to the humanities and arts and international perspective general education requirements.

RUSN 117. Conversation and Pronunciation I (1). Oral practice for beginning students. Concurrent enrollment in RUSN 101 or RUSN 102 recommended. May be repeated to three hours.

RUSN 118. Conversation and Pronunciation II (1). Oral practice for intermediate students. Concurrent enrollment in RUSN 201 or RUSN 202 recommended. May be repeated to three hours.

RUSN 200. Study Abroad I (2-6). Intermediate in-country Russian language training. Prerequisite: RUSN 102 or equivalent.

RUSN 201. Intermediate Russian I (4). Fall. Further development in reading, narrating and describing. Writing common documents. Review of elementary grammar. Four class periods and laboratory practice each week. Prerequisite: RUSN 102 or by placement. Applicable to the humanities and arts and international perspective general education requirements.

RUSN 202. Intermediate Russian II (4). RUSN 201 continued. Introduction to reading Russian fiction, media, and reference works. Completion of basic grammar. Four class periods and laboratory practice each week. Prerequisite: RUSN 201 or by placement. Laboratory practice each week. Applicable to the humanities and arts and international perspective general education requirements.

RUSN 215. Russian Culture (3). Russian culture and its manifestations in arts, family and social life, folkways, religion, and other areas. Presentations, readings, and writing in English. Applicable to the humanities and arts and international perspective general education requirements.

RUSN 216. Contemporary Russian Society (3). Russian society and cultural values as reflected in such aspects of life as the arts, education, work, recreation, politics, family life, and religion. Cross-cultural approach. Presentations, readings, and writing in English. International perspectives course. Applicable to the humanities and arts and international perspective general education requirements. Approved for web delivery.

RUSN 300. Study Abroad II (2-6). Advanced in-country Russian language training. Prerequisite: RUSN 202 or equivalent.

RUSN 312. Introduction to Russian Literature (3). Enjoyment and analysis of literature with selections from 19th- and 20th-century stories, plays, novels, and essays by writers such as Bulgakov, Chekhov, Dostoevsky, and Tolstoy. Cultural background. Conducted in English. Majors and minors read selections in Russian.

RUSN 313. Contemporary Russian Literature (3). On demand. Exploration of themes, styles, and genres of Russian writing since the 1950s. Includes Russian women and emigre writers. Readings, class discussions, and writing in English. Majors and minors complete selected readings in the original.

RUSN 317. Composition and Conversation I (3). Fall. Mastery of conversation and writing for personal and preprofessional needs. Corresponding aspects of contemporary culture. Advanced grammar review. Prerequisite: RUSN 202 or by placement.

RUSN 318. Composition and Conversation II (3). Spring. RUSN 317 continued. Prerequisite: RUSN 317.

RUSN 320. Readings in Russian Culture (2). Readings selected to elucidate themes in Russian cultural and social thought. Guidance in advanced reading techniques. Prerequisite: RUSN 202 or consent of instructor.

RUSN 331. Workshop in Translation (1-3). Individualized and/or small group work in translation of scientific, technical or business writing, or other types of expository prose in the student's area of specialty. May be repeated to six hours. Prerequisite: RUSN 202.

RUSN 401. Russian Poetry (3). Russian lyric and narrative verse since the early 19th century. May focus on major writers such as Pushkin, Lermontov, Blok, Akhmatova, or contemporary poets. Prerequisite: RUSN 202.

RUSN 402. Russian Novel (3). Fascinating examples of Russian fiction selected from such novelists as Bulgakov, Dostoevsky, Nabokov, Pasternak, and Tolstoy. Russian novel in the context of world literature. Readings, class discussion, and writing in English. Majors and minors complete selected reading in the original. May be repeated for credit when offered with different content.

RUSN 403. Russian Drama (3). Russian dramatic art and the theater in Russian culture since the 18th century. Emphasis on post-Chekavian (20th century) period. Readings, class discussions, and writing in English. Stagings may be included. Majors and minors complete selected readings in the original.

RUSN 415. Russian Film (3). Russian film art and history from its inception to present. Works of major directors (Dovzhenko, Eisenstein, Paradzhanov, Pudovkin, Tarkovsky) and other representative films in their cultural context. Extra fee.

RUSN 417. Advanced Composition and Conversation (3). Styles of speech and related advanced grammar. Conversation and composition practice. May be repeated to six hours. Prerequisite: RUSN 318.

RUSN 419. Journalistic Russian (2). Advanced skills for reading periodical literature in Russian. Prerequisite: RUSN 417 or consent of instructor.

RUSN 480. Selected Topics (1-3). Topic chosen to meet curriculum needs and student requests. May be repeated to six hours. Prerequisite: RUSN 202.

RUSN 491. Studies in Russian (1-3). Independent reading for the advanced student. Prerequisites: arrangement with instructor and consent of department chair prior to registration.

#### **SMD Sport Management**

SMD 201. Introduction to Sport Management (3). Fall, Spring. Basic concepts of sport management; career preparation; professional opportunities. Prerequisite: Declared sport management major.

SMD 202. Athletic Training Clinic Management (3). Fall, Spring. An introduction to athletic training/clinic management for athletic training majors. Emphasis will be on the clinical education components, Bowling Green athletic training staff, policies and procedures as used in the clinic/athletic training rooms.

SMD 240. Sport and Recreation Clients with Differing Abilities (3). Fall, Spring. Introduction to knowledges and skills that will enable future sport and recreation management professionals to identify, assess, organize, supervise and promote sport and recreational programs for the disabled population.

SMD 305. Sport and Event Promotion (3). Fall, Spring. Fundamental promotional principles used in marketing sport and event services and products. Focus on strategies of information-based promotional campaigns related to sport and event management. Prerequisites: C or better in MKT 300; C or better in SMD 201 or KNS 227. Approved for web delivery.

SMD 306. Sport and Event Management (3). Fall, Spring. Processes for managing sport and event enterprises. Roles and skills utilized by sport and event managers. Prerequisite: C or better in SMD 201. Approved for web delivery.

SMD 310. Care and Prevention of Sports Injuries (3). Fall, Spring. Basic principles of prevention, recognition and care of sports injuries and duties of athletic trainer. Athletic training majors/minors required to complete clinical observation experience. Extra fee.

SMD 311. Pathology & Evaluation of Athletic Injuries: Upper Extremity (3). Normal physiological responses of the human body to trauma and inactivity. Physiological process of wound healing and tissue repair, and the relationship between typical symptoms and clinical signs and injury/illness pathologies. Commonly accepted techniques and procedures for clinical evaluation and recognition of the signs and symptoms of upper extremity athletic injuries. Prerequisites: SMD 310.

SMD 365. Foundation of Sport Psychology (3). Fall, Spring. Nonclinical approach for athletes, teachers and coaches regarding the role of psychological aspects of human behavior as it affects performance in sport and physical activity; psychological well-being, interpersonal skill development and fitness adherence also emphasized. Prerequisite: PSYC 101.

SMD 366. Psychological Aspects of Exercise and Fitness (3). Fall, Spring. Psychological considerations of exercise and fitness, psychological techniques to enhance adherence to fitness/rehabilitation programs and to enhance coping with exercise related injury. Prerequisite: PSYC 101. Approved for web delivery.

SMD 375. Sport and Public Assembly Facilities (3). Fall, Spring. Designing, planning, managing public and private sport and other public assembly facilities. Prerequisites: SMD 387 and junior standing. Approved for web delivery.

SMD 387. Practicum in Sport Management (1-5). Fall, Spring, Summer. Under supervision of SMD division of School of HMSLS; petitioning required before registration; credit hours approved separately by program area. Prerequisites: formal matriculation into the sport management program and approval of appropriate division faculty. Professional liability insurance required for Option I students. Extra fee.

SMD 390. Legal Aspects of Sport and Recreation (3). Fall, Spring. Negligence liability; control of amateur, professional and school sport; violence/crowd control; product liability; risk management; selected current issues. Prerequisite: junior standing. Approved for web delivery.

SMD 391. Practicum in Athletic Training (2). Fall, Spring. Field experience for athletic training certification students only; weekly seminars. Prerequisites: C or better in KNS 230; B or better in SMD 310 and KNS 328; certification in Red Cross CPR and Advanced First Aid; 90 credit hours; 600 supervised clinical clock hours; permission of instructor.

SMD 395. Workshop on Current Topics (1-3). On demand. Intensive educational experience in selected topics related to skill development, content update or material development; typically, an all-day or similar concentrated time format.

SMD 410. Pathology & Evaluation of Athletic Injuries: Lower Extremity (3). Normal physiological responses of the human body to trauma and inactivity. Physiological process of wound healing and tissue repair, and the relationship between typical symptoms and clinical signs and injury/illness pathologies. Commonly accepted techniques and procedures for clinical evaluation and recognition of the signs and symptoms of lower extremity athletic injuries. Prerequisites: SMD 310. Extra fee.

SMD 411. Therapeutic Athletic Exercise (3). Fall, Spring. Essential components of a comprehensive rehabilitation program including goals and objectives, exercise selection, methods of evaluating and recording progress, and development of criteria for progression and return to competition. Prerequisite: SMD 310.

SMD 413. Therapeutic Athletic Training Modalities (3). Fall, Spring. Examination of the application and physiological responses to selected therapeutic modalities available to the athletic trainer. Prerequisite: SMD 310.

SMD 414. Interpretation of Research in HMSLS (3). Fall, Spring. Identification and evaluation of research problems; interpretation of research in sport management, exercise science, human movement science, leisure, and athletic training; basic statistical analysis and interpretation. Prerequisites: ENG 112 and MATH 115 or higher.

SMD 415. Therapeutic Medications & Health Conditions (3). Fall, Spring. Medical conditions that athletes may experience in their athletic performance for which the student athletic trainer utilizes therapeutic medications and other treatment strategies.

SMD 421. History and Philosophy of Sport (3). Fall, Spring. Major historical and philosophical developments in sport.

SMD 425. Sport and Gender (3). Fall, Spring. Cultural, social-psychological and physiological considerations associated with gender and participation in sport and physical activity. Prerequisite: junior standing.

SMD 431. Program Planning and Management for Recreational and Youth Sports (3). Spring. Planning, management, financing, promotion of intramural, club, youth, community and special sport programs. Prerequisite: junior standing or permission of instructor.

SMD 470. Independent Study in Sport Management (1-3). Fall, Spring, Summer. In-depth study project of a topic of particular significance to the student; project must be approved by project supervisor and program area chair prior to registration; may be repeated. Prerequisite: permission of supervisor and program chair.

SMD 487. Practicum in Sport Management (1-5). Fall, Spring, Summer. Under supervision of sport management division of School of HMSLS, petitioning required before registration; credit hours approved separately by program area. Prerequisites: SMD 387 and approval of appropriate division faculty. Professional liability insurance required for Option I students. Extra fee.

SMD 489. Internship in Sport Management (15). Fall, Spring, Summer. Field experience for sport management majors only. Petitioning required before registration. Prerequisites: 52 hours in major field, satisfactory completion of SMD 387, GPA of 2.5 or above, an average of 2.7 or above in the major field and approval of appropriate division faculty. (Option I majors must also complete KNS 313.) Professional liability insurance required for Option I students. Extra fee.

SMD 490. Professional Resources in Sport Management (3). Fall, Spring. Professional resources for leadership roles in sport and physical activity. Prerequisite: SMD 387.

### **SOC Sociology**

SOC 101. Principles of Sociology (3). Fall, Spring, Summer. Elements and concepts of social organization, social change and group relationships. Applicable to the social sciences general education requirement. Approved for web delivery.

SOC 202. Social Problems (3). Fall, Spring, Summer. Sociological analysis of contemporary social problems. Prerequisite: SOC 101. Applicable to the social sciences general education requirement.

SOC 210. Sociology of Religion (3). Role of religion in society; influence of religion upon society and effects of social structure on religious beliefs. Prerequisite: SOC 101.

SOC 231. Cultural Anthropology (3). Basic concepts and objectives in study of culture. Range of cultural phenomena and approaches to their study. Applicable to the social sciences and international perspective general education requirements.

SOC 300. Topics in Sociology (1-3). Courses being considered for offering on regular basis. See class schedule for listing. May be repeated. Prerequisite: SOC 101.

SOC 301. Social Psychology (3). Fall, Spring, Summer. Social behavior; process of interaction and interpersonal influence. Prerequisite: SOC 101. Approved for web delivery.

SOC 302. Introduction to Sociological Theory (3). Fall, Spring. Major theories and concepts of sociology. Prerequisite: SOC 101.

SOC 311. Community and Urban Sociology (3). Communal life from beginnings in folk society; contemporary urban-metropolitan communities, folk urban contrasts and community types. Prerequisite: SOC 101.

SOC 312. Population and Society (3). Fall, Spring. Population growth and distribution; bearing on current economic, political and social problems. Prerequisite: SOC 101 or consent of instructor.

SOC 313. Fertility and Family Planning (3). Spring. Sociological causes and consequences of human fertility patterns with emphasis on trends and differentials in the United States, including: fertility decision making, value and costs of children, contraception and abortion, unplanned parenthood, voluntary childlessness, illegitimacy, sex education and related public policies. Prerequisite: SOC 101.

SOC 316. Minority Groups (3). Fall, Spring, Summer. Analysis of ethnic and minority groups in American society; conditions that favor and hinder acceptance of such groups as integral elements in national population. Prerequisite: SOC 101. Applicable to the cultural diversity in the United States general education requirement. Approved for web delivery.

SOC 317. Social Stratification and Poverty (3). Spring. Inequalities in distributions of wealth, power and prestige in societies. Types of systems of inequality; caste, estate, class. Consequences of inequalities for society as a whole and for segments of society; educational-occupational opportunities, racial-ethnic relations, social mobility, social change. Prerequisite: SOC 101.

SOC 318. Social Organization (3). Sociological concepts, theories and models of contemporary complex organizations; impact of social psychological factors on organizational effectiveness, relationship of systems theory to problems of organizational design and behavior. Prerequisite: SOC 101.

SOC 319. Alcohol and Public Policy (3). Fall, Spring. The social psychology of alcohol abuse with respect to the incidence, causes and social control of problem drinking. Policy issues considered include those relating to alternative prevention, treatment and intervention strategies. Prerequisites: SOC 101 and SOC 301.

SOC 320. Computers and Society (3). Fall. Impact of computers on society and the social forces prompting the rapid and widespread adoption of computer technology. Protection of personal privacy, changing labor force composition, the cashless society, modification in beliefs and values, the future of post-industrial society. Not a programming course.

SOC 340. Deviance and Social Control (3). Fall, Spring, Summer. History of attempts to define and explain deviant behavior. Social conditions and processes associated with careers of deviants; relationship of deviancy to problems of social control. Prerequisite: SOC 101.

SOC 341. Juvenile Delinquency (3). Fall, Spring, Summer. Analysis and processes of development, treatment, prevention and control of juvenile delinquency. Prerequisite: SOC 101.

SOC 352. Collective Behavior (3). Spring. How new social groupings and order arise from unstructured situations. Behavior of such collectivities as riots, mobs and crowds. Prerequisite: SOC 101.

SOC 361. The Family (3). Fall, Spring, Summer. Traditional and contemporary family types; current similarities and differences of family organization in various cultural environments. Prerequisite: SOC 101. Applicable to the social sciences general education requirement.

SOC 368. Introductory Methodology (3). Fall, Spring. Survey course on research methods in sociology: nature of science, theory construction, operationalization of a research problem, alternative research designs (including evaluation), instrumentation, data collection and data analysis. Prerequisite: SOC 101 or consent of instructor.

SOC 369. Introductory Statistics (3). Fall, Spring, Summer. Data presentation, measures of dispersion, correlation, regression, probability, probability distributions, sampling distributions, hypothesis testing and analysis of variance. Prerequisite: SOC 101.

SOC 371. Applied Survey Research (3). Practical experience in survey research in an applied context: policy issues, problem formulation, measurement, questionnaire-interview design, sampling procedures, data collection, electronic data processing, interpretation and report writing. Prerequisites: SOC 101, SOC 368 and SOC 369 or consent of instructor.

SOC 404. Social Gerontology (3). Spring. Problems of aged in contemporary society. Social gerontology as field of interest of interdisciplinary nature; emphasis on socio-economic approach. Prerequisite: SOC 101.

SOC 414. Society and the Environment (3). Fall. Present issues and problems of human environment from a sociological perspective. Special emphasis on analysis of the present problems of resources, pollution, technology, population, consumerism and the use of energy.

SOC 416. Political Sociology (3). Political behavior in society from standpoint of both classical and contemporary sociology. Prerequisite: SOC 101.

SOC 417. Sociology of Sport (3). Fall, Spring. Sociological concepts and theories to investigate sport as social institution and relationship to other social institutions; organizational theory and small group research applied to sport; social psychological aspects of sports. Prerequisite: SOC 101.

SOC 418. Social Change (3). Theories of social change, technology and social change, social trends and their consequences. Planning, predicting and adapting to social change. Prerequisite: SOC 101.

SOC 419. Population and Development (3). Sociological approaches to understanding relationship between population trends and poverty in developing societies. Issues include food supplies, birth control, urbanization.

SOC 420. Introduction to Demographic Techniques (3). Fall or Spring. Methods of measurement for enumeration and registration data; construction of life tables; measures of fertility, nuptiality, migration, and mortality; examination of census variables.

SOC 427. Introduction to Applied Demography (3). Fall or Spring. An Introduction to the field of applied demography with a focus on the source and accuracy of demographic information, computer techniques used in accessing census data and an overview of key demographic tools.

SOC 441. Criminology (3). Fall, Spring, Summer. Definition, measurement, and correlates of crime. Classical and contemporary theories of crime causation. Societal responses to crime, offenders, and victims. Prerequisite: SOC 101.

SOC 442. Corrections (3). Fall, Spring. Historical, philosophical, and sociological analysis of strategies and institutions designed to punish and change the behavior of criminal offenders. Prerequisite: SOC 441.

SOC 443. White Collar and Organized Crime (3). Criminal behavior within and by organizations; analyses of employee theft, graft, corporate crime, governmental crime, professional crime, syndicated crime. Prerequisite: SOC 340 or SOC 441.

SOC 444. Deviant Sexual Behavior (3). Spring. Sociological perspective on sexual behaviors stigmatized in U.S.; such aspects as prevalence, social contexts of occurrence, effects on society, sources and impacts of societal reaction, especially criminal law. Prerequisite: SOC 340, SOC 341 or SOC 441.

SOC 445. Soc Perspectives Interpersonal Violence (3). Spring. Survey of social scientific theory, research and policy on interpersonal violence. Contemporary issues on violence including homicide, sexual assault, intimate partner and family violence and youth and gang violence. Prerequisite: SOC 101.

SOC 460. Sociology of Gender (3). Theoretical and empirical literature on family and sex roles; socialization, changing nature of women's and men's roles, and prospects for future. Institutional sources of women's and men's roles in other cultures. Prerequisite: SOC 101.

SOC 461. Sociology of Family Violence (3). Fall, Spring. Current research and theoretical perspectives on family violence: spouse battering; marital rape; sibling violence; incest; child abuse. Sex roles, family ideologies, social structures, power relations examined as constituting the basis of family conflict and violence between family members. Prerequisite: SOC 101.

SOC 470. Readings, Research and Internship (1-8). Fall, Spring, Summer. Supervised independent work in selected areas. Extensive reading of more advanced literature, planned research or field placement in an approved setting. May be repeated, but cannot exceed a total of 12 hours. Prerequisites: junior standing and a minimum of 12 hours of accumulated credit in regularly scheduled SOC courses. Prior written permission of instructor and department chair required. Graded S/U.

SOC 471. Applied Sociology Experience (1-6). Fall, Spring, Summer. Supervised field experience in an applied sociology setting. May be repeated up to nine credit hours maximum. Prerequisite: departmental permission.

SOC 480. Senior Seminar (3). Spring. Capstone seminar in sociology for senior majors. Integrates knowledge from previous sociology courses. Students carry out research project under direction of faculty member of choice. Prerequisite: senior major status.

SOC 489. Internship (1-5). Fall, Spring, Summer. Provides practical experience in applied sociology such as criminology, human services, population studies, community planning and survey research. May be repeated. Only five hours may be applied to SOC major or minor. Prerequisite: 12 hours in SOC. Graded S/U.

SOC 495. Workshop on Current Topics (1-4). Intensive educational experience on selected topics. Typically, an all-day or similar concentrated time format. Requirements usually completed within time format. May be repeated if topics differ, on approval of adviser.

### **SOSC Social Science**

SOSC 101. Introduction to the Social Sciences (3). Fundamental concepts and methods in the social sciences. Offered at Firelands only.

SOSC 289. Human Services Practicum (3-4). Supervised field experience in an approved agency combined with a seminar designed to integrate theory and practice. Capstone course to the human services curriculum. Prerequisite: DHS 330 or equivalent and consent of instructor. Offered at Firelands only.

### **SOWK Social Work**

SOWK 110. Introduction to Social Work Profession (3). Fall, Spring. Origins of the profession and its relationship to social welfare. Generalist knowledge base of social work and professional values which guide social work practice.

SOWK 300. Social Work Research Methods (3). Fall, Spring. Includes content specific to the needs of the generalist social worker. Topics include single subject design, program evaluation, quantitative and qualitative methodologies, ethics and critical evaluation of existing research. Prerequisite: SOC 369, MATH 115 or PSYC 270. Approved for web delivery.

SOWK 312. Social Welfare Institutions (3). Fall, Spring. The institutions of social welfare; basic concepts of social welfare as a response to unmet human need. Issues of diversity, growth of the profession and related values. Prerequisites: social work major, POLS 110 and ECON 200; or consent of instructor.

SOWK 320. Human Behavior and the Social Environment I (3). Fall, Spring. Life span from conception to later adolescence utilizing an ecological perspective. Impact of biological, psychological and socio-cultural systems on human growth and development. Prerequisites: social work major, BIOL 104, SOC 101, and PSYC 101; or consent of instructor.

SOWK 321. Human Behavior and the Social Environment II (3). Fall, Spring. Continuation of the life span which includes early adulthood, middle adulthood, aging process, death and dying. Theories and research on various systems (family, groups, organizations) which influence human growth and development. Prerequisites: social work major and SOWK 320; or consent of instructor.

SOWK 322. Social Policy and Social Services (3). Fall, Spring. Social problems, social policy and social services as interrelated areas. Basic models for

evaluating and influencing social policy. Prerequisites: social work major and SOWK 312; or consent of instructor.

SOWK 323. Social Work Practice with Ethnic and Diverse Populations (3). Fall, Spring. This course builds on generalist practice with ethnic and culturally diverse populations and their relationship to social work practice. Emphasis on building knowledge and practice competencies in a multicultural context. Information on theory, current models of macro practice skills related to ethnic and diverse groups, and assessment of intervention effectiveness. Prerequisites: SOWK major, DHS 330.

SOWK 325. Social Work Practice I (4). Fall, Spring. Components of generalist social work practice; needs and strengths identification, assessment, intervention strategies with emphasis on direct (micro) practice, evaluation. One credit lab hour is earned for a minimum of 45 hours off-campus experience in social work setting which integrates theory with practice assignments. Prerequisites: junior standing, SOWK major, SOWK 320, DHS 330, and SOWK 323; or consent of instructor.

SOWK 332. Law for Social Workers (3). Fall, Spring. Legal issues related to confidentiality, legal and legislative processes, family law, courts and adjudication process, role of social worker as witness, legal issues related to disenfranchised population. Prerequisites: junior standing, social work major.

SOWK 400. Topics in Social Work (1-3). On demand. Courses being considered for offering on regular basis. May be repeated.

SOWK 423. Field Instruction (12). Fall, Spring, Summer. Required social work capstone course, practice experience in selected social agency taught by field instructor and monitored by faculty liaison. Minimum of 448 hours. Field practice assignments are made via coordination with prospective social service agency, the field coordinator and the faculty. Prerequisites: all core courses completed prior to field instruction, senior standing, social work major and 2.50 GPA in core and accumulative. Graded S/U.

SOWK 426. Social Work Practice II (3). Fall, Spring. Course builds on previous practice courses covering material from mezzo through macro practice. Content includes social work treatment and task group, organizational and community practice. Community practice skills include: advocacy, fundraising, education, lobbying. Prerequisites: SOWK major, SOWK 320, DHS 330, and SOWK 323; or consent of instructor. Can be taken concurrently with SOWK 325.

SOWK 430. Practice Skills Seminar (3). Fall, Spring, Summer. Faculty and field instructors conjointly teach this course. Conceptual frameworks, precise techniques and practitioner styles are considered as they underlie the student's problem solving in field instruction. Taken concurrently with SOWK 423.

SOWK 470. Independent Study (1-3). Fall, Spring, Summer. Student designs and carries out study or special project in area of interest. Prerequisites: junior standing, social work major and faculty sponsor. May be repeated up to six hours.

#### **SPAN Spanish**

SPAN 101. Elementary Spanish I (4). Fall, Spring. Introduction to Spanish language and to Hispanic cultures. Communicative approach to teach beginning language use in the four skill areas: listening, speaking, reading, writing. Four classroom hours and one-hour scheduled laboratory practice each week. Applicable to the humanities and arts and international perspective general education requirements.

SPAN 102. Elementary Spanish II (4). Fall, Spring. SPAN 101 continued. Four classroom hours and one-hour scheduled laboratory practice each week. Prerequisite: SPAN 101 or one year of Spanish in high school.

SPAN 141. Conversational Spanish for Medical Personnel (3). Practice in speaking and understanding oral Spanish; essential expressions, questions and directions needed by medical personnel.

SPAN 201. Intermediate Spanish I (3). Fall, Spring. Communicative approach to teach intermediate language use in the four skill areas: listening, speaking, reading, writing (emphasis on composition). Reading and discussion in Spanish of cultural readings. Three classroom hours and one-hour scheduled laboratory practice each week. Prerequisite: SPAN 102 or two years of Spanish in high school. Applicable to the humanities and arts and international perspective general education requirements.

SPAN 202. Intermediate Spanish II (3). Fall, Spring. SPAN 201 continued. Three classroom hours and one-hour scheduled laboratory practice each week. Prerequisite: SPAN 201 or three years of Spanish in high school. Applicable to the humanities and arts and international perspective general education requirements.

SPAN 212. Spanish Cultural Readings IV (3). Fall, Spring. Development of reading comprehension in Spanish using cultural materials concerning Spain and Spanish America. Conducted in English. Prerequisite: SPAN 201 or three years of Spanish in high school. Cannot be taken for credit if SPAN 202 credit has been received. Applicable to the humanities and arts and international perspective general education requirements.

SPAN 221. Hispanic Songs (1). Traditional and popular songs from various Hispanic countries, sung in Spanish; emphasis on study of texts and pronunciation. May be repeated to maximum of three hours. Prerequisite or corequisite: SPAN 101 or consent of instructor.

SPAN 231. Hispanic Folk Dancing (1). Traditional dances of Spain and Spanish America, especially those of Mexico and Columbia. Learning and performance of dances accompanied by regional and historical background. May be repeated to maximum of two hours. No prerequisite.

SPAN 270. Introduction to Latin American Culture Studies (3). Fall. Introductory overview of Latin American culture from a variety of disciplinary perspectives. Topics may include racial, national and regional identities; urban and rural society; popular celebrations and political protest. Conducted in English.

SPAN 351. Spanish Composition and Conversation I (3). Development of skill in speaking and writing, with appropriate grammar review. Prerequisite: SPAN 202.

SPAN 352. Spanish Composition and Conversation II (3). Continued development of skill in speaking and writing, with appropriate grammar review. Prerequisite: SPAN 202.

SPAN 367. Introduction to Spanish Peninsular Literature (3). Outstanding authors, works and movements of Peninsular literature from the Middle Ages to the present. Prerequisite: SPAN 351, SPAN 352 or consent of instructor.

SPAN 368. Introduction to Spanish American Literature (3). Outstanding authors, works and movements from the time of discovery to the present. Prerequisite: SPAN 351, SPAN 352 or consent of instructor.

SPAN 371. Spanish Civilization (3). Political, social, intellectual, artistic development of Spain. Prerequisite: SPAN 351 or SPAN 352.

SPAN 377. Civilization of Mexico and the Caribbean (3). Fall, Spring. Political, social, intellectual, artistic development of Mexico, Central America and Spanish-speaking islands of the Caribbean. Prerequisite: SPAN 351 or SPAN 352.

SPAN 378. Civilization of South America (3). Fall, Spring. Political, social, intellectual, artistic development of Spanish-speaking countries of South America. Prerequisite: SPAN 351, SPAN 352 or consent of department.

SPAN 379. Readings in Hispanic Studies (1-3). Fall, Spring, Summer. Independent readings for the intermediate student who wishes to start studying a particular period or issue. Prerequisites: Consent of department chair and instructor.

SPAN 380. Topics in Hispanic Studies (3). Fall, Spring, Summer. Overview of either Peninsular, Latin American and/or Latinos in the U.S. issues related to language, linguistics, film, literature and/or culture. May be repeated if topics clearly differ. Prerequisites: SPAN 351 and SPAN 352 and admission to the AYA Program. Repeatable up to twenty-four credit hours. Offered through AYA Program.

SPAN 381. Selected Topics in Spanish (3). Fall, Spring, Summer. Topics chosen from either Peninsular, Latin American and/or U.S. Latinos literature, linguistics, language, film and/or culture. May be repeated up to nine credit hours with different topics. Prerequisites: SPAN 351 and SPAN 352.

SPAN 382. Spanish Business Correspondence (2). Spanish for commercial purposes; business letter writing. Prerequisite: SPAN 351 or SPAN 352.

SPAN 395. Workshop in Spanish (1-3). Intensive educational experience on selected topics. Typically, an all-day or similar concentrated time format. May be repeated if topics differ, on approval of advisor. Course may be repeated once up to six hours.

SPAN 401. Latin American Culture Studies Seminar (3). Spring. Investigation and discussion of cultural topics from a number of different perspectives. Topic may vary from year to year. Prerequisite: SPAN 270.

SPAN 431. Spanish American Fiction (3). Major authors and works from literary movements of the 19th and 20th centuries, with emphasis on either regionalism or the contemporary novel. Prerequisite: SPAN 368.

SPAN 441. Medieval and Golden Age (3). Representative masterpieces of Spanish literature from the Middle Ages and the Siglo de Oro: Epic, poetry, novel and theater. Prerequisite: SPAN 367.

SPAN 442. Spanish Literature of the Nineteenth Century (3). Outstanding works of the 19th century; romanticism, realism, naturalism, prose and poetry. Prerequisite: SPAN 367.

SPAN 444. Contemporary Spanish Literature (3). Outstanding works from the generation of 1898 to the present; poetry and prose. Prerequisite: SPAN 367.

SPAN 450. Advanced Grammar and Composition (3). Grammar and composition, especially appropriate for future teachers of Spanish. Prerequisites: SPAN 351 and SPAN 352.

SPAN 455. Applied Linguistics (3). Phonological, morphemic, syntactical, semantic aspects of Spanish; application to language learning and teaching. Prerequisites: SPAN 351 and SPAN 352 or consent of instructor.

SPAN 463. Career Spanish (3). Development of translation skills (Spanish to English and English to Spanish) on materials representing a wide range of technical, professional and business careers. Prerequisites: SPAN 351 and SPAN 352.

SPAN 470. Readings in Hispanic Literature (1-3). Independent reading for the advanced student who wishes to study a particular period or author. Prerequisites: consent of department chair and instructor.

SPAN 481. Spanish-American Literature I: Discovery to Modernism (3). Representative authors from the Chroniclers through the Romanticists; prose and poetry. Prerequisite: SPAN 368 or consent of instructor.

SPAN 482. Spanish-American Literature II: Modernism to the Present (3). Representative authors from Modernism and subsequent 20th century literary developments; prose and poetry. Prerequisite: SPAN 368 or consent of instructor.

SPAN 488. Contemporary Mexican Literature (3). Outstanding works of the 20th century. Prerequisite: SPAN 368 or consent of instructor.

SPAN 489. Hispanic Studies (3). Intensive study of an author, literary school, genre or selected theme. May be repeated if topics clearly differ. Prerequisite: SPAN 367 or SPAN 368.

#### **STAT Applied Statistics**

STAT 200. Using Statistics (3). Fall, Spring. Descriptive statistics, probability distributions, estimation, hypothesis testing, regression, contingency tables. Interpretation and misinterpretation of statistical techniques. Does not count toward BSBA degree.

STAT 211. Elementary Statistical Methods I (3). Fall, Spring. Elementary probability, random variables, probability distributions, sampling, descriptive statistics, sampling distributions, estimation. Prerequisite: credit for MATH 126 or MATH 131, or C or better in MATH 134. Credit not given for both STAT 211 and MATH 247.

STAT 212. Elementary Statistical Methods II (3). Fall, Spring. Estimation, hypothesis testing, regression, correlation, analysis of variance and contingency tables. Prerequisite: STAT 211.

STAT 300. Introduction to Regression and Design (3). Fall, Spring. Regression analysis, analysis of variance, topics in design of experiments. Prerequisite: STAT 212 or consent of instructor.

STAT 402. Regression Analysis (3). Fall. Linear, nonlinear and multiple regression and correlation analysis. Prerequisite: MATH 441 or consent of instructor.

STAT 406. Sample Design (3). Spring. Sampling as a tool of scientific inference in research and management. Planning surveys; sample size, stratified, systematic and cluster sampling; sources of error in surveys. Prerequisite: MATH 441 or consent of instructor.

STAT 408. Experimental Design (3). Spring. Constructing statistical designs and analyzing resulting data; basic experimental design and analysis of variance. Prerequisite: MATH 441 or consent of instructor.

STAT 412. Applied Nonparametric Statistics (3). Nonparametric approach to testing hypotheses; contingency tables, goodness of fit, procedures based on ranks. Prerequisite: MATH 441 or consent of instructor.

STAT 414. Statistical Quality Control (3). Statistical process control; Shewhart control charts (variables and attributes); acceptance sampling (single, double and sequential); Dodge-Romig tables. Prerequisite: STAT 212, MATH 441 or consent of instructor.

STAT 416. Time Series Analysis (3). Stochastic stationary and nonstationary models; use in forecasting seasonal and nonseasonal discrete time series; fitting models to time series data. Prerequisite: MATH 441 or consent of instructor.

STAT 491. Studies in Statistics (1-3). On demand. Investigation of selected areas or contemporary problems. May be offered individually and in classes depending on student needs and nature of material.

### **TCOM Telecommunication**

TCOM 103. Media and the Information Society (3). Fall, Spring. Social trends as influenced by technology in the information society. Social policy and effects involving information technologies and information services. Examples from the telephone, computer, print, film, television, cable, radio and satellite systems. No credit for both JOUR 100 and TCOM 103. Open to nonmajors.

TCOM 250. Radio and Television Production for Non-TCOM Majors (3). Fall, Spring. Basic theories and tasks of audio and video production including scripting, technical quality and aesthetics. In-studio experience in radio and television operation. Laboratory hours. No prerequisites. Not open to TCOM majors. Extra fee.

TCOM 255. International Telecommunication Systems (3). Fall, Spring. Survey of telecommunication systems worldwide. Comparison of technical bases, economics, politics, programming, regulation and audience research. Non-majors by permission of department. Approved for web delivery.

TCOM 260. Writing for the Electronic Media (3). Fall, Spring, Summer on demand. Writing for broadcasting and other electronic media; creating scripts with visual and aural appeal; conveying messages in clear, economical, simple style that communicate to mass audiences. Prerequisites: ENG 112, TCOM 103 and TCOM 255. Non-majors by permission of department. Extra fee. Approved for web delivery.

TCOM 262. Radio Announcing and Production (3). Fall, Spring. Style and basic principles and practices of announcing; theories and processes of audio production. Laboratory hours. Prerequisite: TCOM 260. Extra fee.

TCOM 263. Video I: Production Fundamentals (3). Fall, Spring. Principles of multiple-camera studio directing for television and film. Examination of conventional practices. Series of studio workshops with emphasis on directing, content development, planning and scripting, and composition. Laboratory hours. Prerequisite: TCOM 260. Nonmajors by permission of instructor. Extra fee.

TCOM 265. Internet Applications for the Telecommunications Industry (3). On demand. Internet-based software applications that are affecting the telecommunication industry. Provides students with the fundamentals for functioning in an industry that is increasingly characterized by its reliance on Internet-based activities. Prerequisite: TCOM 260 or consent of instructor. Extra fee.

TCOM 270. Topics in Minorities and Film/Video (3). On demand. Portrayal and/or participation of minorities in film and video. Topic varies. No prerequisite. Extra fee.

TCOM 350. Scriptwriting (3). Spring. Study and practice of writing for radio, television, film; treatment, format, audience requirements, production techniques. Prerequisite: TCOM 260, nonmajors with permission of instructor.

TCOM 360. Applied Research in Telecommunication (3). Fall, Spring, Summer. Overview of approaches to social research; survey methods, including sampling, measurement, interviewing, questionnaire design and presentation of results; content analysis; ratings; and interpretation of elementary descriptive statistics.

TCOM 364. Video II: Field Production and Editing Fundamentals (3). Fall. Field experience in content creation and production. Focus on single-camera, film-style video production. Includes equipment handling, artistic and aesthetic composition, tape and nonlinear editing, and production management. Laboratory hours. Prerequisite: TCOM 263 or equivalent experience. Extra fee.

TCOM 365. Broadcasting History (3). Fall. Current U.S. broadcasting with view of antecedents in regulations, economics, programs, audiences, stations, networks, technology and employment. Prerequisite: eight hours of TCOM.

TCOM 366. Media Effects (3). Fall, Spring, Summer. Theories and research studies of media effects. Critical examination of opposing viewpoints. Prerequisite: TCOM 260.

TCOM 368. Radio Workshop (3). Fall. Development of program ideas through all stages of planning, writing, directing and selling. Individual program projects for possible use on WBGU or WFAL. Prerequisite: TCOM 262. Extra fee.

TCOM 395. Workshop on Current Topics (1-3). On demand. Intensive educational experience on selected topics. Typically, an all-day or similar concentrated format. Requirements usually completed within time format. May be repeated if topics differ, on approval of adviser.

TCOM 400. Topics in Documentary Studies (3). On demand. Examines radio-TV-film documentaries, including history-criticism, research-writing. Lecture/discussions and viewings/labs comprise the meetings. Interdisciplinary participation is encouraged. May be repeated once for different topics. Prerequisite: ENG 112 and instructor permission.

TCOM 451. New Electronic Media (3). Fall, Spring, Summer on demand. New developments in telecommunication and associated information-communication technologies with emphasis on World Wide Web, the Internet and digital media technologies. Prerequisite: TCOM 260.

TCOM 453. Media Sales and Promotion (3). On demand. The course introduces the advertising and media product sales process for telecommunications media and various techniques to promote media companies and products. Prerequisites: TCOM 103 or consent of instructor. Approved for web delivery.

TCOM 455. Telecommunications Management (3). Spring. Function, organizational structure and procedures involved in the operation of the telecommunication industry and electronic media. Prerequisite: TCOM 260.

TCOM 460. Telecommunication Policy and Regulation (3). Fall, Spring. Theoretical approaches to key policies and regulations shaping activities in the

telecommunication sector. Applied study of policy and regulatory issues in broadcasting, cable, telephony, the Internet and digital media. Prerequisite: TCOM 260.

TCOM 462. Radio Programming and Audiences (3). Spring. Modern radio program formats and their audiences in the United States. Prerequisite: TCOM 262.

TCOM 463. Telecommunications Programming (3). Fall. Audience behavior, program genres and the structure and procedures of the telecommunication industry in the selection, scheduling and evaluation of television, cable programs and online portal web sites. Prerequisite: TCOM 260.

TCOM 466. Television and Film Criticism (3). On demand. Critical frameworks, approaches and theories of theatrical, documentary and avant-garde films, video, and creative television productions. Function, content, and style of film and television criticism. Emphasis on criticism and critical methodology. Extra fee.

TCOM 468. Video III: Advanced Production (3). Spring. Advanced methods of film-style video production techniques including master scene, screen direction, interviews, composition and lighting, and feature production. Emphasis on using production as a means for expression. May be repeated once. Prerequisite: TCOM 364 or equivalent experience. Extra fee.

TCOM 469. Seminar: Contemporary Aspects of Telecommunications (1-3). On demand. Investigation and analysis of area in telecommunication. Various topics of current concern. May be repeated with permission of adviser to six hours.

TCOM 475. Electronic Surveillance and Privacy (3). On demand. The course examines the social implications of a world where everyday life is increasingly subject to electronic surveillance. Theoretical and policy approaches to understanding the growth of electronic surveillance and its consequences. In-depth analysis of various modes of electronic surveillance. Evaluation of North American and European privacy policy frameworks. Approved for web delivery.

TCOM 489. Internship in Telecommunications (1-6). Fall, Spring, Summer. Supervised field experience in electronic communication. Student must arrange for experience with approval of intern supervisor in advance of registration. May be repeated up to six hours. Limited to TCOM majors. Prerequisite: TCOM 260. Graded S/U.

TCOM 490. Problems in Telecommunications (1-3). Fall, Spring, Summer. For advanced student who wishes to do intensive research in telecommunication and media studies, independently or in conjunction with courses regularly offered. May be repeated if topics differ. Prerequisite: consent of department.

### **TE Technology Education**

TE 252. Elements of Instruction (3). Fall. Models of instruction as related to learner, and functions and purposes of specialized career and technology education programs on all educational levels including individual observation and participation at various levels.

TE 352. Instructional Scope and Sequence (3). Spring. Design and implementation of instructional systems including performance objectives, appropriate content, teaching-learning strategies and evaluation in specialized career and technology education programs on all educational levels, including individual observation and participation at various levels. Prerequisite: TE 252.

TE 447. Teaching Technology Systems (3). Spring even years. Integration and use of principles developed in previous methods courses and laboratory settings;

selection, organization, adaptation and use of instructional materials or curriculum projects related to industrial technology systems. Prerequisites: MFG 112, CONS 235. Extra fee.

TE 449. Organization and Administration (3). Fall. Financial and business procedures, program, laboratory and equipment planning; maintenance programs, classroom and laboratory management systems; purchasing, storage, dispensing and inventory control procedures; public relations, curricular responsibilities, innovative programs. Prerequisites: TE 352 and TE 497.

TE 462. Career and Technology Education in Elementary Schools (3). Spring odd years. Development and evaluation of instructional activities to facilitate career development and understanding of technology among elementary children. Extra fee.

TE 470. Coordinating Cooperative Education Programs (3). Prepares coordinator of cooperative work education programs in all phases of career and technology education. Readings, discussion and field experiences designed to develop understanding of various types of cooperative programs, role of coordinator and related instruction.

TE 490. Problems in Technology Education (1-3). For advanced students wanting to conduct intensive study of selected problems in technology education. May be repeated. Prerequisite: consent of college.

TE 492. Student Teaching (1-16). Fall, Spring. Classroom teaching under supervision on full-day basis. Conferences and seminars supplement program. Required for elementary and/or kindergarten-primary certification. Eligibility requirements must be met. C/F hrs.: 300. May be repeated. Graded S/U. Extra fee.

TE 497. Student Teaching (1-16). Fall. Classroom teaching under supervision on full-day basis. Conferences and seminars supplement program. Required of students in secondary school or special certification program. Eligibility requirements must be met. C/F hrs.: 300. May be repeated. Graded S/U. Extra fee.

### **TECH Technology**

TECH 101. Technology I (3). Fall, Spring, Summer on demand. Communication processes and methods defined by the technology system model. Problem solving techniques introduced and developed. Students use several application software packages on microcomputers to solve communication problems. No prerequisites.

TECH 223. Mechanical Power Transmission (3). Fall. Mechanical drive systems and applications. Design, operation, maintenance of mechanical power systems used in industry. One and one-half hour lecture and three hours laboratory. Extra fee.

TECH 226. Quality Systems (1-3). A study of selected topics related to industry, military, national, or international quality systems and standards. May be repeated if topics differ. One hour lecture. Offered at Firelands only.

TECH 280. Developments in Technology (1-3). New developments in technology, as related to studies in the College of Technology, that impact on labor, management, equipment, materials and systems. May be repeated with approval of adviser.

TECH 289. Cooperative Education (4). Fall, Spring, Summer. Work and study in business, industry, service or government agency in college-approved, paid, full-time position related to student's intended areas of concentration. A minimum of 520 hours of employment during one semester is required. Prerequisites: consent of department and successful completion of co-op workshop. Graded S/U.

TECH 290. Studies in Engineering Technology (1-3). For students wanting to conduct intensive study of selected problems in engineering technology. May be repeated up to 6 credits if topics vary. Offered at Firelands only.

TECH 291. Field Experience (1-3). Paid work activity in an appropriate technology environment related to an occupational objective. One credit requires 180 hours of work. May be repeated to three credits. Prerequisite: permission of site supervisor and adviser. Offered at Firelands only.

TECH 302. Technology Systems in Societies (3). Current issues and their relationship to technology and systems in various cultures throughout the world; emphasis on explaining technological behaviors, and on showing how technology permeates all human affairs. Two one-and-one-half-hour lectures per week. Prerequisite: junior status or consent of instructor. Applicable to the social sciences and international perspective general education requirements. Approved for web delivery.

TECH 303. Instructional Design and Delivery (3). Learning styles, reading levels, philosophies of learning and education, instructional delivery methods, instructional techniques and evaluation instruments.

TECH 310. Computer-mediated Communications in Training and Education (3). On demand. Introduces students to computer-mediated communications and applications within training and education today. Focus is on the application of networking technologies and resources that support high-quality, interactive instruction in both face-to-face and at-a-distance learning environments. Approved for web delivery.

TECH 320. Adult Learning in Technological Settings (3). Introduction to adult development theory and related implications for adult learning, design elements from assessment through evaluation and identification of roles and responsibilities of educators and learners in various environments. Approved for web delivery.

TECH 323. Fluid Power Transmission (3). Spring. Pumps, motors, valves, circuits, applications of hydraulic and pneumatic power systems. Design, operation, maintenance of fluid power systems used in industry. One and one-half hours of lecture and three hours laboratory. Extra fee.

TECH 389. Cooperative Education (4). Fall, Spring, Summer. Work and study in business, industry, service or government agency in college-approved paid, full-time position related to student's area of concentration. A minimum of 520 hours of employment during one semester is required. Prerequisites: TECH 289 and consent of department. Graded S/U.

TECH 395. Technology Workshop (1-3). Intensive educational experience in a specialized technology. Typically an all-day or concentrated format. Requirements usually completed within time format. May be repeated.

TECH 402. Innovation in Technology (3). Techniques and procedures involved in innovation and experimentation related to technology; emphasis on product and prototype innovation, experimentation, problem solving, research and development, diffusion and adoption of innovations. Prerequisite: junior status or consent of instructor.

TECH 403. Evaluation and Assessment within Technology (3). Principles and procedures used in the measurement, evaluation, and assessment of educational programs involving individuals, groups, programs, and systems within a technology setting. Approved for web delivery.

TECH 415. Instructional Materials Development (3). Instruction in the organization, design, preparation, and application of technology-based teaching materials. Emphasis is on the underlying theories of instructional materials selection and development, instructional design, visual communication, and instructional materials production processes.

TECH 421. Technological Forecasting (3). On demand. Examining different technologies and technology systems, as they pertain to the information technology (IT) industry and additional industries; determining how these technologies will be used, what kind of demand there may be for them, and some of the positive and negative consequences of implementing them. Prerequisites: TECH 302 and TECH 310, or by permission of instructor. Approved for web delivery.

TECH 422. Information Policy Analysis (3). On demand. Examining current and pending federal and state legislation that impacts how electronic information (audio, video, and text) is disseminated; exploring the political, cultural, economic, and social aspects of these policies as they pertain to information and technology. Prerequisites: TECH 302 and TECH 310, or by permission of instructor. Approved for web delivery.

TECH 423. Digital Rights Management Perspectives (3). On demand. Examining current and pending rights models used to secure digital content; examining the implications Digital Rights Management (DRM) schemes carry with them, and their impact on the flow of electronic information in modern societies. Prerequisites: TECH 302 and TECH 310, or by permission of instructor. Approved for web delivery.

TECH 424. Media Usability Studies (3). On demand. Examination of the usability of computer-based device interfaces and the accomplishment of human tasks, thinking critically about how information is presented; attention to hardware and software user interfaces, user-centered evaluation processes, usability engineering, educational uses of computers, and computer-supported cooperative work. Prerequisites: TECH 302 and TECH 310, or by permission of instructor. Approved for web delivery.

TECH 428. Development of Training Programs (3). Design, production and evaluation of training programs for industry and business. Job analysis, task analysis, instructional design and cost analysis in development of training programs. Approved for web delivery.

TECH 438. Administering Training Systems (3). Administrative functions and procedures related directly to training and development organizations are introduced. Students will be introduced to software utilized to assist with the processes of managing educational and training systems. Approved for web delivery.

TECH 448. Transformational Learning and Technology (3). Developing an understanding of technology systems as political, economic, and social entities that have multiple goals; using that understanding as a framework for the development of educational adoption events that promote transformational learning during introduction and application of new technologies. Prerequisites: TECH 302 and TECH 310. Approved for web delivery.

TECH 454. Energy Conversion and Power Transmission (3). Spring even years. Existing and developing systems of energy conversion and power problems of fuel efficiency, pollution, potential, maintenance and application. Four hours of lecture and laboratory. Prerequisite: ECT 191. Extra fee.

TECH 480. Topics in Technology (1-3). Current trends and developments in industry and business, particularly as they have significance to equipment, materials, processes, systems and facilities related to the education of technologists. May be repeated on approval of adviser.

TECH 489. Cooperative Education (4). Fall, Spring, Summer. Work and study in business, industry, service or government agency in college-approved, paid, full-time position related to student's intended areas of concentration. May be repeated to eight hours. A minimum of 520 hours of employment during one semester is required. Prerequisites: TECH 389 and consent of department. Graded S/U.

TECH 490. Problems in Technology (1-3). For advanced students wanting to conduct intensive study of selected problems in technology. Prerequisite: consent of college. May be repeated. Graded S/U.

#### **THFM Theatre and Film**

THFM 046. Production Participation (). Fall, Spring. Required of all Theatre and Film Majors for six semesters. Requires participation in departmental production assignments in consultation with faculty. Graded S/U.

THFM 099. Major Event Participation (). Fall. Required once of all Theatre and Film Majors of sophomore or junior standing and once of all Theatre and Film Majors in their senior year. Students will take part in a professional adjudicated audition/interview process scheduled at the end of the fall semester. Graded S/U.

THFM 110. Intercollegiate Forensic Activities (1). Fall, Spring. Instruction and experience in intercollegiate contest speaking, including forms of public address and oral interpretation. May be repeated for two credits. Extra fee.

THFM 139. Dramatic Production (1). Laboratory course for student who participates as performer or technician in Firelands College productions. May be repeated to two hours. Any combination of THFM 139 and THFM 146 may not exceed two hours. Prerequisite: consent of instructor. Offered at Firelands only.

THFM 141. The Theatre Experience (3). Fall, Spring, Summer. Art of theatre; heritage and contemporary values as humanistic discipline; importance as social/cultural experience; opportunity for some involvement in theatrical activities. Laboratory hours required. Applicable to the humanities and arts general education requirement.

THFM 146. Backstage Experience (1). Fall, Spring. Laboratory course for student who participates as performer or technician in departmental productions. For freshmen and sophomores. May be repeated to two hours. Prerequisite: consent of theatre and film department. Graded S/U.

THFM 147. Basic Scenery Construction, Props and Scene Painting (2). Fall. Tools, equipment and techniques used in basic scenery construction, including stock 2-D and 3-D units, weight bearing scenery, properties and basic scene painting techniques. Emphasis is placed on practical application through the department's production program. Laboratory hours required.

THFM 148. Basic Costume Construction (2). Spring. Tools, equipment and techniques used in basic costume construction, including materials and fabrics, basic stitches, patterning, draping, dyeing and distressing. Emphasis is placed on practical application through the department's production program. Laboratory hours required.

THFM 149. Basic Stage Lighting and Sound (2). Spring. Tools, equipment and techniques used in basic stage lighting and audio practice: including lighting instruments, dimmers, control boards, distribution; microphones, signal sources, speaker types, processing, mixing and recording. Emphasis is placed on practical application through the department's production program. Laboratory hours required.

THFM 150. Drafting, Drawing, and Graphics for Theatre and Film (2). Fall. Tools and techniques used in drawing and rendering for scenic, costume, and lighting designers. Emphasis is placed on realistic depiction, thumbnail sketching, graphic conventions, and skills development. Mechanical perspective included. No prior drawing coursework required. Studio work required.

THFM 161. Introduction to Film (3). Fall, Spring, Summer. Various approaches to looking at films and writing about them. Essential elements of film production, such as editing, sound and composition, camera work, and film genres explored through viewing and discussion of representative films. Introduction to aesthetic and structural languages of film as an art form. Applicable to the humanities and arts general education requirement. Extra fee.

THFM 191. Playscript Analysis (3). Fall, Spring. Methods of reading, studying, and analyzing playscripts for production on stage. Concentration on script as vehicle for performance and the understanding of it from the perspective of the actor, director, designer, and technician.

THFM 202. Performance Studies I (3). Fall, Spring, Summer. Introduction to the solo performance of literature (poetry, prose, oral history). Emphasis on textual analysis as well as vocal and physical techniques of performance. Applicable to the humanities and arts general education requirement.

THFM 215. Exploring Cultural Diversity Through Performance (3). Fall, Spring. Through performance and discussion of selected public and private texts written by American minority writers, this course explores what it means to be a part of a culturally diverse society. Applicable to the cultural diversity in the United States general education requirement.

THFM 241. Acting: Principles (3). Fall, Spring. Basic techniques of acting applied to creating contemporary characters in realistic situations; imaginative, emotional and sensory responsiveness.

THFM 242. Acting: Topics in Voice and Movement (3). Fall or Spring. Developing the actor's voice and body as major tools of expressiveness, expanding physical and/or vocal flexibility and range. Topic varies. May be repeated to 12 hours if topics differ, on approval of adviser.

THFM 255. Film I: Cinematography (3). Fall, Spring. Theory and techniques of cinematography. The technical and aesthetic aspects of light, shadow, color, film stock, lens choice, and lighting design. Projects in still photography and 16mm motion picture. Laboratory hours arranged.

THFM 256. Film II: Editing, Image, and Sound (3). Fall. Theory and techniques of editing, sound recording, and sound design for film. Juxtaposition of images, sound-image relationships, structure, pacing, and rhythm of film images. Use of microphones, recorders, 16mm editing equipment, and nonlinear digital editing software. Laboratory hours arranged. Prerequisite: THFM 255.

THFM 262. History of Film (3). Fall, Spring. History of film making, representative artists, genres, and innovation in commercial as well as experimental film.

THFM 290. Studies in Theatre and Film (1-3). Fall, Spring, Summer. For the intermediate student who wishes to do independent study, through a faculty advisor, on a variety of topics. May be repeated. Prerequisite: consent of the theatre and film department.

THFM 302. Performance Studies II (3). Spring. Exploration of various forms of solo performance, such as performance in social context, the one-person show, or specialized literary or genre study. (Shakespeare, modern poetry, southern fiction). Topics to be announced. May be repeated for six hours. Prerequisite: THFM 202 or consent of instructor.

THFM 310. Intercollegiate Forensic Activities (1). Fall, Spring. For juniors and seniors; similar to THFM 110. May be repeated to two credits. Extra fee.

THFM 330. Theatrical Makeup (3). Theory and application of makeup for stage, television and film, corrective and character makeup; prosthetics; facial hair.

THFM 339. Dramatic Production (1). Laboratory course for student who participates as performer or technician in Firelands College productions. May be repeated to three hours. Any combination of THFM 339 and THFM 346 may not exceed three hours. Prerequisite: consent of instructor. Offered at Firelands only.

THFM 340. Creative Drama (3). Fall, Spring. A hands-on experience in the use of drama in nonperformance situations. Drama as a stimulus for creativity and problem solving in preschool, elementary and secondary classrooms and in other settings. Theory and practice of improvisation, pantomime and story dramatization.

THFM 341. Directing (3). Fall, Spring. Theory and techniques of play direction. Each student directs a short scene. Laboratory hours arranged. Prerequisites: THFM 191, and THFM 241 or THFM 150, or consent of instructor.

THFM 342. Advanced Directing (3). Spring. THFM 341 continued. Each student directs at least one short play or series of short scenes. Prerequisite: THFM 341. Laboratory hours arranged.

THFM 344. Acting: Character and Range (3). Alternate years. In depth study of character development for a variety of performance contexts and for broadening range of roles and performative choices. Prerequisites: THFM 191, THFM 241, and THFM 242, or consent of instructor.

THFM 345. Acting: Topics and Applications (3). Alternate years. Intensive lectures/studio examining a specific topic, style or range of acting styles. May be repeated to six hours if topics differ, on approval of adviser. Prerequisites: THFM 191, THFM 241, and THFM 242, or consent of instructor.

THFM 346. Backstage Experience (1). Fall, Spring. Laboratory course for student who participates as performer or technician in departmental productions. For juniors and seniors. May be repeated to three hours. Prerequisite: consent of the theatre and film department. Graded S/U.

THFM 347. Theatre History and Literature: Origins-1700 (3). Fall. History of theatrical production, major dramas and dramatists from primitive time through 1700. Applicable to the humanities and arts general education requirement.

THFM 348. Theatre History and Literature: 1700-Present (3). Spring. History of theatrical production, major dramas and dramatists from 1700 to the present. Applicable to the humanities and arts general education requirement.

THFM 350. Milestones in Black Theatre (3). Spring. Read, research and discuss/report on the aesthetics, dramatic intent, historical significance and production history of milestone black plays.

THFM 352. Musical Theatre (3). On demand. History, theory and staging techniques of musical theatre production in the United States.

THFM 355. Film III: Sync Sound Production (3). Spring. Theory and techniques of live action film production. Collaboration with actors, visual interpretation, sync sound recording, production management, digital and analog sync sound editing. Class works as creative team on production of short film. Laboratory hours arranged. Prerequisites: THFM 255, THFM 256.

THFM 360. Tree House Troupe--Rehearsal (3). Spring. Rehearsal/Workshop development period prior to tour to NW Ohio public schools. Students will be in rehearsal two days a week, Tuesday and Thursday. Enrollment limited to students cast in the Tree House Troupe productions. Auditions are held each year during the fall term. See department for audition dates. Concurrent enrollment in THFM 361 required.

THFM 361. Tree House Troupe--Tour (3). Spring. Tour of two productions and workshops to NW Ohio public schools. Students will be off campus two days a week, Tuesday and Thursday. Enrollment limited to students cast in the Tree House Troupe productions. Auditions are held each year during the fall term. See department for audition dates. Concurrent enrollment in THFM 360 required.

THFM 393. Film Production: From Concept to Distribution (3). Fall. Overview of mainstream and independent film business. Financing, producing, marketing, and distributing films. Current trends, developments in technology, responsibilities of production personnel. Prerequisites: THFM 161, THFM 262.

THFM 395. Workshop on Current Topics (1-3). Intensive educational experience on selected topics. Typically, an all-day or similar concentrated time format. Requirements usually completed within time format. May be repeated if topics differ, on approval of adviser.

THFM 440. Theatre for Young Audiences (3). Fall. Producing plays for child audiences; application of concepts of child development to aesthetic problems of theatre for young audiences, through reading, discussion and participation.

THFM 442. Screenwriting (3). On demand. Story structure in mainstream features and short form narratives. Screenplay form, dramatic rhythm, scene structure. Theory and techniques of creating action, character, metaphor, dialogue for film. Development of cinematic story telling skills through creative writing exercises to staged readings of students' screenplays.

THFM 443. Playwriting (3). Fall. Writer's workshop involving creation and production of original play for stage; discussion of process of playwriting and mounting a play for production. May be repeated.

THFM 444. Acting and Directing for Film (3). Fall. Theory and techniques of creating performances for film. Points of contact between stage and screen as well as specific adjustments and requirements for working in film. Emphasis on script analysis, rehearsal methods, collaboration between actors and directors. Readings, screenings, taped exercises, collaborative projects. Prerequisites: THFM 251, THFM 255, or THFM 262.

THFM 445. Acting: Songs and Arias (3). On demand. Precepts of acting are applied to songs and/or arias in order to open the physical and emotional options

available to performers as they sing. Prerequisite: junior standing or consent of instructor.

THFM 446. Summer Theatre Performance (1-6). Summer. Intensive laboratory work in study, preparation and development of roles. Particular problems of performance in summer theatre. Prerequisite: consent of theatre and film department.

THFM 448. Summer Theatre Production (1-6). Summer. Intensive laboratory work in scenery construction and painting, stage lighting, organization and operation of backstage crews and technical theatre. Particular problems of technical production in summer theatre. Prerequisite: permission of the theatre and film department.

THFM 449. Contemporary Issues in Theatre (3). Seminar for advanced students. Specific topics vary and depend on current trends in world theatre as identified by students and faculty members. Prerequisite: consent of instructor.

THFM 450. Summer Theatre Management (1-6). Summer. Intensive laboratory work in various aspects of theatre management; publicity, box office, house management, public relations. Particular problems of management of summer theatre. Prerequisite: consent of the theatre and film department.

THFM 459. International Puppetry: Traditions and Innovations (3). Spring. This course provides an overview of the traditional genres, literature, and significant contemporary artists within the puppetry discipline.

THFM 460. Period, Style and Form (3). Fall. Historical overview of decorative arts in their social context for application in productions.

THFM 461. Puppets and Masks: Design and Craft (3). Fall. This course introduces students to the design approaches, construction techniques and materials necessary to produce masks and puppets for theatrical purposes.

THFM 462. Puppetry Performance (3). On demand. This course introduces students to a variety of puppet manipulation and performance techniques suitable for presentation before a live audience.

THFM 463. Lighting Design (3). Theories and techniques of lighting stage productions; lighting instruments and equipment. Prerequisite: THFM 149 or permission of instructor.

THFM 465. Stage Management (3). Spring alternate years. Practical approach to the tools and techniques involved in stage management for drama, musicals, ballet and dance, and opera; including building prompt scripts, sight reading musical scores, dance notation, and basic music and dance terminology.

THFM 466. Scene Design (3). Spring alternate years. Study in scenic design for the stage and screen. Dramatic action as organic element in design. Effects of line, mass, color, and texture on the scenic environment. Lab work on University productions required.

THFM 467. Scene Painting (3). On demand. This course introduces students to the techniques of using paint to simulate a variety of materials as well as to scale up renderings and found images to create theatrical backdrops.

THFM 469. Costume Design (3). Basic principles of costume design for the stage, television, and film. Development and rendering of design concepts; use of historic, stylistic, and fantasy elements in character realization.

THFM 471. Practicum in Theatre or Film (1). Fall, Spring. Faculty supervised practical experience in theatre or film. Contract-based work experience on or off campus in which the student applies learning concepts to practical situations. Student must be recommended by adviser and approved by chair of theatre and film department. Graded S/U.

THFM 472. Advanced Production Practicum (2). Fall, Spring, Summer. A closely supervised significant production assignment for a major production, such as directing, acting in a major role, or a design or stage management assignment. Heavy production participation commitment. Prerequisite: Advanced acting, directing, stage management, scenic, costume or lighting design as applicable to the project; and permission of the department. (See department for petition to enroll.)

THFM 485. Topics in Film, Theatre, and Performance Studies (3). On demand. Readings in theoretical, historical, aesthetic, and cultural perspectives on topics in film, theatre, and performance studies. Key concepts outlined by instructor and assigned readings contextualized and amplified by electronic discussions, independent screenings, academic and field research. Approved for web delivery.

THFM 489. Theatre and Film Internships (1-12). Fall, Spring, Summer. Supervised field experience in theatre or film. Contract-based study of theatre or film principles as intern in public or commercial production company. Student must be recommended by adviser and approved by chair of theatre and film department. May be repeated for up to 12 hours.

THFM 490. Problems in Theatre and Film (1-3). Fall, Spring, Summer. For advanced student who wishes to do intensive study in theatre or film, independently or in conjunction with courses regularly offered. May be repeated. Prerequisite: consent of theatre and film department.

THFM 498. Senior Seminar in Theatre and Film (2). Fall. Exploration of the learning/life skills inherent in the study and practice of theatre and film. Major Event participation required. Prerequisite: senior standing and THFM 099.

#### **UNIV University**

UNIV 100. University Success (2). Fall, Spring. Introduction to higher education. Development of skills in oral and written communication, time and stress management, interpersonal relations, personal wellness, library research, and studying/test-taking. Awareness of social issues such as AIDS, alcohol and substance abuse, acquaintance rape, and race relations.

UNIV 101. Freshman Interest Group (1). Fall. Prepares students for academic success in two linked courses in an area of the student's prospective major. Focus on learning strategies and skills in critical thinking, test taking, communication and inquiry relevant to the courses.

UNIV 110. Student Success Seminar (2). Fall, Spring. Structured academic support system for continuing students participating in the Student Support Services program. Enhancement of competencies necessary for success at the University.

UNIV 111. Springboard (1). Fall, Spring. A dynamic self-development course that engages first-year students in the learning process and builds self-assurance by enabling them to assess their proficiency and plan strategically for growth in Investigation, Connection, Presentation, Writing, Participation, and Leadership.

UNIV 129. Career Planning (1). Strategies developed for career and life planning decisions. Occupational choice theory, assessment of values, needs, interests, and skills helpful in selecting an academic major and relating that major to a

career. Investigation of occupations and issues affecting career choice. Offered at Firelands only.

UNIV 130. Job Search (1). Strategies developed for job search and preparation. Skills in preparing resumes, job applications, cover and thank you letters, networking, and interviewing. Offered at Firelands only.

UNIV 131. Career and Life Planning (2). Fall, Spring, Summer. Helps students assess personality, interests, values, aptitudes and abilities, explore world of work and requisite academic preparation, generate occupational and academic options, make knowledgeable and self-appropriate decisions. Extra fee.

UNIV 141. EAP Strategies for Effective Work Performance (2). Fall, Spring. The EAP course provides students with the theory, practical knowledge and skills required to perform effectively in a student employment position and encompasses 8 essential workplace competencies. Prerequisites: Open to first- and second-year students only.

UNIV 201. Orientation Training (2). Fall, Spring. Introduction to issues, challenges, student development theories, support services associated with the freshman year of college. Development of oral and written communication skills, teaching techniques, presentation skills, and an understanding of higher education and Bowling Green State University.

UNIV 202. Practicum in Orientation (2). Fall, Spring. Participants co-facilitate an orientation course for freshmen, plan and present class sessions, promote awareness of campus resources, meet weekly with their co-facilitators, serve as peer adviser, evaluate the program and their experience, and attend training events. May be repeated.

UNIV 210. Residence Life for the Paraprofessionals (1). Fall, Spring. Knowledge, skills, competencies needed to effectively fulfill the responsibilities and role of the paraprofessional in a university residence hall setting. Instructor permission required.

UNIV 211. Upper Springboard (1). Spring. Utilizing and polishing the core skills of Investigation, Connection, Presentation, Writing, Participation, Leadership in a wide variety of academic and real-life contexts. Participants serve as peer mentors. Prerequisite: UNIV 111.

UNIV 220. Seminar for the Student Leader (1). A leadership course for students in organizations that will enhance effectiveness as a student leader by exploring: the influence of values on the leadership process, the environment in which student organizations operate, and students' philosophy on leadership. This course is designed to be a reflective experience that integrates classroom learning as well as application to out of class involvement. No prerequisites or special fees.

UNIV 310. Seminar in Residence Life (1). Spring. Expands knowledge and skill level of experienced paraprofessional. Problem solving activities, role playing, case studies used to address issues of the residential environment. Instructor permission required.

UNIV 320. Special Topics (1-4). On demand. Supervised study of a topic related to the practices and policies of the college/university environment. May be repeated. Prerequisite: permission of instructor.

UNIV 331. Career Exploration (3). Spring. Explore occupational and academic prospects. Develop understanding of career decision making process, world of

work, job search strategies, employability issues. Six to eight hour per week internships. Instructor permission required.

UNIV 380. Peer Career Advising (1). Spring. Development of peer advising skills including listening, interviewing, problem solving, decision making, related to career planning issues. Career development theory and explanation of roles in career planning and placement. Instructor permission required.

UNIV 401. Independent Studies (1-15). Fall, Spring, Summer. Open to any sophomore, junior or senior with a 2.5 GPA and participating in the Washington Center Internship Program. Contact the Cooperative Education and Internship Program before registration. Graded S/U.

UNIV 410. Advanced Residence Life for the Paraprofessional (1). Spring. Experienced paraprofessional is teamed with full-time professional in group discussion format. As facilitator with groups of potential paraprofessionals, focus on skills and competencies needed for success. Instructor permission required.

UNIV 411. Springboard Coaching (1). Fall, Spring. Mentoring skills are developed by coaching a first-year student through experiential learning activities designed to improve skills in the University's Learning Outcomes: Investigation, Connection, Writing, Presenting, Participation, and Leadership. May be repeated. Prerequisite: Sophomore standing or above, 2.5 GPA or permission of instructor.

#### **VCT Visual Communication Technology**

VCT 103. Introduction to Visual Communication Technology (3). Fall, Spring. This course provides an introduction to visual communication theory and processes. Students are exposed to multi-media development, video production, photography, and printing techniques as they relate to solving communication problems. Extra fee.

VCT 104. Problem Solving for Visual Media (3). Overview of the visual problem solving process and how it applies to the diverse formats used in visual communication technology. Focus is on problem solving that stimulates visual thinking. Includes visual problem solving analysis, freehand sketching and the application of design, using computer based vector and raster solutions. The use of orthographic projections, isometrics and multi-point perspective will be reviewed. Four and one-half hours of lecture/laboratory.

VCT 204. Concepts of Visual Communication (3). Fall, Spring. Advanced visual communication concepts including problem solving, research, ideation, design, script writing, storyboarding, training techniques, proposal preparation, cost estimating and analysis. Overall project management techniques and environmental factors covered in depth. Four hours lecture and laboratory. Prerequisite: VCT 103 or instructor approval. Extra fee.

VCT 208. Introduction to Print Media (3). Fall, Spring, Summer. Major printing processes; concentrations in image design, digital image assembly and photo conversion, image carrier preparation and image transfer. All new print media will be explored. Four hours of lecture/laboratory. Extra fee.

VCT 266. Introduction to Interactive Media (3). Introduction to basic interactive media concepts and techniques. Emphasis on basic design and production of effective media projects with a focus on network deployment. Prerequisites: VCT 203.

VCT 268. Video Fundamentals (3). Fall, Spring, Summer on demand. Provides instruction to video production theory, process and techniques. This course provides students with hands-on experience in planning, shooting, and editing

promotional and industrial video presentations. Students are required to provide their own video camera. Prerequisite: VCT 103. Extra fee.

VCT 282. Photography I (3). Fall, Spring, Summer. Basic camera and darkroom techniques. Experiences in film processing and printing techniques as well as basic camera operation with an introduction to digital imaging. Four hours of lecture/laboratory. Extra fee.

VCT 304. Display and Exhibit Technology (3). Fall. Display and exhibit industry from problem analysis through design and production to installation and evaluation. Overview of "high-tech" media used to stop audiences and create the desired outcome. Four hours lecture and laboratory. Prerequisites: VCT 103. Extra fee.

VCT 308. Fundamentals of Imaging Technology (3). Fall, Spring, Summer. Image/art preparation techniques for various publishing applications including print, CD ROM and other computer media. Digital imaging fundamentals of computer systems, type, graphic images and color. Four hours of lecture/laboratory. Prerequisite: VCT 208 or instructor approval. Extra fee.

VCT 309. Electronic Image Preparation for Print Media (3). Fall. Study of imposition and electronic image assembly and preparation for printing. Experiences in color proofing, plate preparation and process color printing are also provided. Four hours lecture/laboratory. Prerequisite: VCT 308 or instructor approval. Extra fee.

VCT 310. Graphic Image Transfer Systems (3). Spring. Offset, screen, flexographic, and gravure image transfer examined. Integration of digital image preparation and the impact on transfer systems. Topics include quality control, problem solving, system management, and production. Four hours of lecture/laboratory. Prerequisite: VCT 309. Extra fee.

VCT 366. Applied Interactive Media Production (3). Exploration and experimentation with a variety of interactive media presentation technologies. Following the design process, students will produce complex interactive media projects with an emphasis on distribution methods. Prerequisites: VCT 266 or instructor approval. Extra fee.

VCT 369. Video Production Techniques (3). Fall; Spring and Summer on demand. Advanced study focusing on promotional, training, and "how to" video productions. Students will produce a short industrial video using the VCT approach to media production. Students are required to provide their own video cameras. Prerequisite: VCT 268. Extra fee.

VCT 382. Photography II (3). Fall, Spring. Advanced camera handling, darkroom techniques and an emphasis on digital image capture and manipulation. Four hours of lecture/laboratory. Prerequisite: VCT 282. Extra fee.

VCT 386. Animatronics Technology (3). Fall even years. Overview of the audio-animatronic industry including design, fabrication, programming, installation, maintenance and evaluation; various applications. Four hours of lecture/laboratory. Extra fee.

VCT 456. Digital Color Applications (3). Spring. Basic color theory and color models as applied in color capture (scanning, photo, video) and output (monitors/videos, color printers, color separation). Color management as applied in color image processing is also studied. Four hours of lecture/laboratory. Prerequisite: VCT 308 or instructor approval. Extra fee.

VCT 460. Digital Photography (3). Research and experimentation in computer-generated digital imaging techniques. Four hours of lecture/laboratory. Prerequisite: VCT 382. Extra fee.

VCT 465. Commercial Photography (3). Application of skills and knowledge pertaining to the professional field of commercial photography. Production requirements, studio management and the use of large format cameras and advanced lighting techniques in both B&W and color photography. Four hours of lecture/laboratory. Prerequisite: VCT 382. Extra fee.

VCT 467. Visual Communication Technology Synthesis (3). Fall, Spring. Techniques of visual communication problem solving: project coordination, scheduling, cost and estimating for visual presentations; aesthetic and technical qualities of graphic presentation. Four hours of lecture/laboratory. Prerequisites: VCT 208, ARTD 211 and senior standing. Extra fee.

VCT 469. Non-linear Video Production (3). Spring. Advanced course in industrial video production, emphasis on non-linear editing techniques. Hands-on experience develops projects that culminate in a variety of different applications from tape to multimedia. Four hours lab and lecture. Prerequisite: VCT 368 or instructor approval. Extra fee.

VCT 482. Advanced Concepts of Multimedia Production (3). Spring. In-depth examination and experimentation of multimedia concepts and tools. Integration of digital photography, imaging, computer applications of hardware and software, learning strategies, planning and evaluation. Four hours of lecture/laboratory. Prerequisites: VCT 466 or instructor approval. Extra fee.

VCT 483. Color Photography (3). Theories and principles in production of color negatives, prints and transparencies for commercial and industrial photographic applications; emphasizes basic color sensitometry, quality control techniques and use of laboratory color films. Four hours of lecture/laboratory. Prerequisite: VCT 382.

VCT 490. Problems in Visual Communication Technology (1-3). For advanced students wanting to conduct intensive study of selected problems in visual communication technology. May be repeated. Prerequisite: consent of college and instructor. Graded S/U. Extra fee.

#### **WS Women's Studies**

WS 200. Introduction to Women's Studies: Perspectives on Gender, Class and Ethnicity (3). Fall, Spring, Summer. Interdisciplinary survey of the new scholarship on women. Emphasis on the interconnectedness of gender, class and ethnicity in women's experiences and viewpoints. Applicable to the cultural diversity in the United States general education requirement. Approved for web delivery.

WS 240. Special Topics in Women's Studies (3). Fall, Spring. Topics of interest in studying women in subject area not offered in regular college course offerings. May be repeated twice, if topics differ. No prerequisite.

WS 300. Topics in Women's Studies (1-4). Fall, Spring. Topics of interest in studying women in subject area not offered in regular college course offerings. May be repeated twice if topics differ. No prerequisite.

WS 301. Women, Art and Culture (3). Fall. Women's creativity and cultural production in the visual, literary and performing arts, and their relationships to broader cultural issues, including cross-cultural perspectives. Prerequisite: WS 200 or consent of instructor.

WS 302. History of Feminist Thought and Action (3). Spring. Historical survey of feminist theorists who have challenged and advocated changes in traditional ways of thinking about women's diverse social, sexual, racial, theological, class-specific status in society. Prerequisite: WS 200 or permission of instructor.

WS 327. Women in Modern Europe (3). Fall alternate years. Examination of women in Europe since 1750. Emphasis on changes in women's working, family, sexual and political lives in conjunction with Europe's economic and political modernization. Credit not given for both WS 327 and HIST 327.

WS 400. Advanced Topics in Women's Studies (3). Fall, Spring. In-depth study of specific topic in women's studies scholarship or feminist criticism and theory. May be repeated if topics differ. Prerequisite: WS 200 or permission of instructor.

WS 401. Senior Seminar and Practicum (3-4). Fall, Spring. Capstone course examines relationship between feminist theory and practice. Apply ideas learned in previous women's studies courses and seminar readings to experience working with community or national organization. Supervised practicum and weekly seminar meetings. Prerequisites: senior standing and WS 302.

WS 470. Independent Study in Women's Study (1-3). Fall, Spring. Study project to be designed by student and member(s) of women's studies faculty in subject area not offered in regular course offering. Prerequisite: junior or senior standing or permission of instructor.