

# Course Descriptions



## Course Numbering System

0-49 Courses carrying continuing education unit credit.

50-99 Developmental courses; grades earned in these courses will not count toward the student's GPA, but may be considered in making university business decisions. Hours earned in these courses are not degree applicable.

100-299 Primarily for freshmen and sophomores; such courses generally contain introductory, elementary or basic level content.

300-499 Primarily for juniors and seniors; courses contain advanced undergraduate level content.

400G-499G May be taken by graduate students.

## Course Descriptions

*Note: Any course approved for general education credit is designated at the end of the description. For details refer to the section of the catalog titled "General Education Requirements."*

### ACC – ACCOUNTING

#### DEPARTMENT OF LIBERAL ARTS AND SCIENCES

#### ACC 200C. INTRODUCTORY ACCOUNTING—FINANCIAL. (3)

See ACCT 200.

#### ACC 201C. INTRODUCTORY ACCOUNTING-MANAGERIAL. (3)

See ACCT 201.

### ACCT – ACCOUNTING

#### DEPARTMENT OF ACCOUNTING

**ACCT 200. INTRODUCTORY ACCOUNTING—FINANCIAL. (3)** *Prerequisite: Sophomore standing and completion of general education mathematics requirement.* Introduction to the basic accounting theories, concepts and principles used in gathering and reporting financial data of a business organization. Course focuses on the information provided to external users through financial statements. Emphasis is placed on preparing the statements, examining the statements' components, and interpreting the information reported.

**ACCT 201. INTRODUCTORY ACCOUNTING-MANAGERIAL. (3)** *Prerequisite: ACCT 200; accounting majors must have earned a "C" or better.* Introduces accounting concepts, practices, and tools for managerial decision making. This course is designed to provide an understanding of how financial and non-financial data are used in decision making and control. Topics typically include activity-based costing, cost behavior, job-order costing, process costing, cost-volume-profit analysis, flexible budgeting, relevancy costing, departmental cost allocation, and profit planning.

**ACCT 300. INTERMEDIATE FINANCIAL ACCOUNTING I. (4)** *Prerequisite: Cumulative 2.5 GPA in ACCT 200 and ACCT 201 combined, with a minimum grade of "C" or higher in each course.* A review of the financial accounting concepts, relationships, and procedures involved with preparing and interpreting financial statements. Includes an in-depth coverage of the valuation, measurement, and financial reporting issues associated with ASSETS and LIABILITIES.

**ACCT 301. INTERMEDIATE FINANCIAL ACCOUNTING II. (3)** *Prerequisite: ACCT 300, with a grade of "C" or better.* A continuation of Intermediate Financial Accounting I with emphasis placed on certain specialized accounting subjects. Topics typically covered include revenue recognition, stockholders' equity, earnings per share, pensions, leases, accounting changes and error analysis, the statement of cash flows, and accounting for income taxes.

**ACCT 310. MANAGERIAL COST ACCOUNTING. (3)** *Prerequisite: Cumulative 2.5 GPA in ACCT 200 and ACCT 201 combined, with a minimum grade of "C" or higher in each course.* An in-depth study of cost accounting practices, including job order, process, normal, activity-based, and standard costing. Also examines accounting tools such as budgeting, cost-volume-profit analysis, relevant costing, and responsibility accounting that provide organizational managers with information for planning, decision-making, and control.

**ACCT 312. ACCOUNTING INFORMATION SYSTEMS. (3)** *Prerequisites: ACCT 300 and ACCT 310 (or concurrent) with grades of "C" or better; CIS 243 (or concurrent).* A study of accounting information systems, traditional and contemporary, with hands-on experience with a manual accounting system and a computerized accounting system. Emphasis is on the transformation of data to information and the internal controls necessary in each environment. (course fee)

**ACCT 315. MANAGEMENT ACCOUNTING. (3)** *For non-accounting majors - may not be taken by accounting majors. Prerequisites: ACCT 200 and 201; MGT 210 or permission of instructor.* The use of cost, revenue, and other economic data in the management processes of measurement, analysis, decision making, and planning for profit-seeking entities. Includes readings, exercises, problems, and cases emphasizing use of accounting data for problem solving in modern manufacturing, distribution, and service industries.

**ACCT 330. TAX PLANNING FOR INVESTMENTS. (3)** *For non-accounting majors - may not be taken by accounting majors. Prerequisite: FIN 330.* An explanation of the federal income tax structure and the role taxes play in decision making. The tax effects on personal investments and the tax factors in personal financial planning are given special emphasis.

**ACCT 390. INTERNSHIP IN ACCOUNTING. (3)** *Prerequisites: ACCT 300 or equivalent, a minimum of six hours of upper-level accounting courses at WKU, a 2.75 GPA overall, a 2.5 GPA in upper-level accounting courses, and permission of the Chair of Accounting.* Relevant and meaningful full-time accounting-related work experience outside the classroom in a supervised setting with a cooperating business or not-for-profit organization. (Grading: Pass/Fail)

**ACCT 401. BUSINESS COMBINATIONS AND RELATED TOPICS. (3)** *Prerequisite: ACCT 301 with a grade of "C" or better.* Emphasis is placed on the issues involved in business combinations, including the preparation of consolidated financial statements. Other topics typically covered include partnerships, interim and segment reporting, international accounting, and foreign currency transactions and translations.

**ACCT 402. CONTEMPORARY ACCOUNTING ISSUES. (3)** *Prerequisites: ACCT 301 and ACCT 310 with grades of "C" or better and senior standing; expected graduation date within 12 months of enrollment.* A study of contemporary problems in financial accounting. Emphasis placed on the study and evaluation of pronouncements of various organizations concerned with the development of accounting principles and practices. Helps broaden the student's concept and understanding of accounting into a meaningful discipline.

**ACCT 410. ADVANCED MANAGERIAL COST ACCOUNTING. (3)** *Prerequisite: ACCT 310 with a grade of "C" or better.* Examines advanced theories and concepts in the field of managerial cost accounting, including transfer pricing, capital budgeting, inventory planning, cost estimation, non-financial performance measures, and quality costs.

**ACCT 420. GOVERNMENTAL AND NOT FOR PROFIT ACCOUNTING. (3)** *Prerequisite: ACCT 301 with a grade of "C" or better.* Provides a broad understanding of fund accounting and financial reporting for various types of governmental and not for profit organizations. Examines the similarities and differences among the fund structures and financial reporting requirement of the two categories of organizations. Types of organizations typically studied include: all governmental organizations, health care organizations, colleges and universities, and voluntary health and welfare organizations.

**ACCT 430. FEDERAL TAXATION – INDIVIDUALS. (3)** *Prerequisite: ACCT 300 with a grade of "C" or better and senior standing, or consent of instructor.* Provides a comprehensive explanation of the federal tax structure. Primary emphasis is placed on the federal income tax as it applies to individuals. Provides the student with an opportunity to apply tax principles to specific problems.

**ACCT 431. FEDERAL TAXATION – BUSINESS ENTITIES. (3)** *Prerequisite: ACCT 430 with a grade of "C" or better.* Furthers the student's understanding and knowledge of the federal income tax structure as it applies to partnerships and corporations. Other specialized areas of taxation are also covered. Emphasis is placed on the use of tax services in researching tax problems.

**ACCT 440. BUSINESS LAW FOR THE ACCOUNTING PROFESSIONAL. (3)** *Prerequisites: MGT 200 and ACCT 402 (or concurrently) or ACCT 450 (or concurrently).* Contracts, Uniform Commercial Code, sales, debtor-creditor relationships, security regulation, property, estates, and trusts and other topics pertinent to the legal portion of the CPA Examination are covered.

**ACCT 450. AUDITING AND ASSURANCE SERVICES. (3)** *Prerequisites: ACCT 301 and 312 with grades of "C" or better, and senior standing.* Emphasizes the work of public accountants. Topics covered include auditing standards, professional ethics, legal liabilities, auditing objectives and procedures, preparation of audit working papers, reporting considerations when rendering an opinion on financial statements, and other services provided by accountants. Internal auditing, including the concepts of operational and compliance auditing, are also considered.

**ACCT 451. ADVANCED AUDITING AND ASSURANCE SERVICES. (3)**  
*Prerequisite:* ACCT 450 with a grade of "C" or better. Further develop auditing skills introduced in ACCT 450. Impact legislation on auditing, the presentation and detection of fraud, ethics and independence and international auditing standards. In-depth examination of auditing cycles, reporting on internal control, corporate governance, internal audit and sampling.

**ACCT 460. CPA PROBLEMS. (3)** *Prerequisite:* ACCT 402 (or concurrent) with a grade of "C" or better; expected graduation date within 12 months of enrollment. The course is designed to assist the student in preparing for the uniform CPA examination. Passing this examination is one of the requirements for becoming a certified public accountant. NOTE: This course is an elective but will not count as part of the 6 hours of required accounting electives.

**ACCT 470. SENIOR SEMINAR IN ACCOUNTING. (1-3)** *Prerequisite:* Senior standing. Investigation into current accounting developments. The course is designed to give seniors an opportunity for in-depth study of important accounting developments.

**ACCT 499. SENIOR ASSESSMENT IN ACCOUNTING. (1)** *Prerequisites:* Senior standing, enrolled in last regular semester of course work. (Summer graduates would take this course in the spring semester prior to completion.) This course is designed to be a tool in the senior assessment process. It is designed to provide a means of conducting assessment of accounting majors. The course will seek to measure knowledge of basic accounting ideas and concepts. Students will also be introduced to the professional certification programs and career opportunities available in the accounting profession. Required for all accounting majors.

**ACMS**  
**CAROL MARTIN GATTON ACADEMY OF MATHEMATICS AND SCIENCE**

**ACMS 175. ACADEMY SEMINAR EXPERIENCE. (1)** Restricted to Gatton Academy students. Taken during the first three semesters for Gatton Academy students. Addresses study skills, leadership, social and emotional intelligence, and critical thinking skills. May be repeated up to three hours credit.

**AERO- AEROSPACE STUDIES**  
**OGDEN COLLEGE OF SCIENCE AND ENGINEERING**

**AERO 151/153. THE U.S. AIR FORCE TODAY. (1)** Freshman year. A survey course designed to introduce students to the United States Air Force and Air Force Reserve Officer Training Corps. Featured topics include: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, group leadership problems, and an introduction to communication skills.

**AERO 251/253. THE DEVELOPMENT OF AIR POWER. (1)** Sophomore year. This course examines the development of air power over the past 80 years. It traces the evolution of various concepts of air power employment and focuses upon tactics that have promoted research and technological change. A variety of events and elements in the history of air power are stressed, particularly where these events provide a significant example of the impacts of air power on strategic and tactical thought.

**AERO 351/353. AIR FORCE LEADERSHIP AND MANAGEMENT-THE PROFESSIONAL OFFICER. (3)** Junior year. These courses are designed to further develop the students managerial and leadership abilities. Emphasis is placed on group discussions, seminars, writing and speaking assignments, and appropriate lectures. A detailed examination of the meanings of professionalism and integrity are discussed and exercised through practical experiences. Courses include problem solving exercises and theories of leadership and management.

**AERO 451/453. NATIONAL SECURITY AFFAIRS/PREPARATION FOR ACTIVE DUTY. (3)** Senior year. These courses are designed to improve the cadet's ability to speak and write with stylistic accuracy, clarity and dignity. They focus on the Armed Forces as an integral element of society and include an examination of the broad range of American civil-military relations and the environmental context in which defense policy is formulated. Special themes include the role of the professional officer in a democratic society, socialization process within the armed services, requisites for maintaining adequate national security forces, political, economic, and social constraints upon the national defense structure, and the impact of technological and international developments upon strategic preparedness and the overall defense policy-making process.

**AFAM / AFA - AFRICAN AMERICAN STUDIES**  
**AFRICAN AMERICAN STUDIES (AFAM)**  
**DEPARTMENT OF LIBERAL ARTS AND SCIENCES (AFA)**

**AFAM 190 / AFA 190C. AFRICAN AMERICAN EXPERIENCE. (3)** African American life and experiences in the United States viewed from a cross-disciplinary perspective. Seven core subjects are surveyed: African American history, religion, politics, creative productions (music, dance, theatre), economics, social organizations and psychology. [GEN ED E]

**AFAM 350. PEOPLES AND CULTURES OF AFRICA. (3)** Survey of the cultures of Africa, with emphasis on historical development and contemporary cultural diversity. Equivalent to ANTH/FLK 350. [GEN ED E]

**AFAM 358. BLACKS IN AMERICAN HISTORY TO 1877. (3)** A chronological study of African American history and culture from 1619 to 1877 with an emphasis on African American contributions to American life and thought. Equivalent to HIST 358. [GEN ED E]

**AFAM 359. BLACKS IN AMERICAN HISTORY SINCE 1877. (3)** A chronological study of African American history and culture from 1877 to the present with an emphasis on African American contributions to American life and thought. Equivalent to HIST 359. [GEN ED E]

**AFAM 360. HISTORY OF AFRICA. (3)** A survey of the history of sub-Saharan Africa from the earliest times to the present. Equivalent to HIST 360. [GEN ED E]

**AFAM 368. AFRICAN GOVERNMENTS & POLITICS. (3)** *Prerequisites:* PS 250, PS 260 or permission of the instructor. Examines sub-Saharan African political and economic development. Focuses on several selected countries and explores the common political and economic problems and opportunities confronting African states. [GEN ED E]

**AFAM 377. AFRICAN AMERICAN FOLKLIFF. (3)** Oral, written, and material folk traditions of African Americans, with emphasis on the United States and the Caribbean. Equivalent to FLK 377. [GEN ED E]

**AFAM 393. AFRICAN AMERICAN LITERATURE. (3)** *Prerequisite:* ENG 200 or permission of instructor. A critical study of the contributions of African American writers to American literature. Equivalent to ENG 393. [GEN ED E]

**AFAM 410. AFRICAN AMERICAN MUSIC. (3)** A survey of selected musical styles created and developed by African Americans from the 17th to the 20th century: spirituals, blues, popular music forms (e.g., soul, reggae, rap music). Emphasis will be placed on the historical factors and sociocultural trends that influenced the development of African American music. Equivalent to FLK 410. [GEN ED E]

**AFAM 466. GEOGRAPHY OF AFRICA. (3)** *Prerequisite:* Permission of instructor. A geographic survey assessing the relationships of the physical and cultural patterns to actual and potential economic development. Equivalent to GEOG 466.

**AFAM 480. DIRECTED INDEPENDENT STUDY IN AFRICAN AMERICAN TOPICS. (1-3)** *Prerequisite:* AFAM 190 or permission of instructor. Designed primarily for advanced students. This course will permit students to pursue selected topics dealing with the life and times of the people of African ancestry in Africa and America.

**AFAM 490. AFRICAN AMERICAN SEMINAR. (3)** *Prerequisite:* AFAM 190 or permission of instructor. Designed primarily for advanced students. This seminar will include topics dealing with the African American, present or past.

**AGEC - AGRICULTURAL ECONOMICS**  
**DEPARTMENT OF AGRICULTURE**

**AGEC 260. GOLF COURSE MANAGEMENT. (3)** An introductory course on the organization and operation of a golf course business. Topics include planning, implementation and control of the physical facilities and financial aspects.

**AGEC 360. AGRICULTURAL ECONOMICS. (3)** An introduction to the private and public sector of the United States economy. Identification of the resources used in agriculture. Elementary application of economic principles to resource use in agriculture.

**AGEC 361. FARM MANAGEMENT. (3)** *Prerequisite:* AGECE 360. Organizing and managing farms; factors affecting farm earnings; resource allocation; combining farm enterprises, individual farm organization and farm management problem assignments and application of the principles of business to farming are stressed.

**AGEC 362. AGRICULTURAL MARKETING. (3)** *Prerequisite:* AGECE 360. Included are principles and methods of marketing farm products; institutions performing the various functions in marketing specific commodities; market prices; marketing costs; elementary treatment of cooperative marketing.

**AGEC 365. COMPUTER APPLICATIONS IN AGRICULTURE. (2)** *Prerequisite:* CS 145 or permission of the instructor. Instruction in the use of microcomputers in agriculture. Included will be word processing, spreadsheets, data files, presentations, and other software used in agriculture.

**AGEC 366. AGRICULTURAL SALES AND SERVICES. (3)** *Prerequisite:* Senior standing or consent of instructor. Exploration, investigation and application of principles and concepts of sales and service applied to agriculture. A credit and personal improvement course designed for agri-business and educators working with sales and service of agricultural inputs and products.

## Course Descriptions

### AGEC 391. SURVEY OF COMMODITY FUTURES AND OPTIONS. (3)

*Prerequisites:* AGEC 360 and AGRI 291. Introductory overview of physical commodity features and options markets including history, function, analysis, trends and strategies, with specific focus on agricultural and food industry applications.

**AGEC 460. AGRICULTURAL POLICY . (3)** *Prerequisite:* AGEC 360. Principles underlying agricultural policy; the role of agriculture in the national economy; objectives of agricultural policy and the means of reaching them; appraisal of current and proposed agricultural programs; and legislation for remedial economic action are presented.

**AGEC 461. ADVANCED FARM MANAGEMENT. (3)** *Prerequisite:* AGEC 361 or instructor's consent. Identification, analysis and solution of problems of farm organization and operation; how to evaluate and incorporate innovations into new or ongoing operation, case studies and field trips to situation farms in South Central Kentucky are emphasized.

**AGEC 463. AGRICULTURE FINANCE. (3)** *Prerequisite:* AGEC 361 or instructor's consent. Farm finance problems, credit institutions, capital requirements, investment decisions, budgeting techniques, operation of lending agencies and alternative means of acquiring capital are studied.

**AGEC 468. WORLD FOOD DEVELOPMENT. (3)** *Prerequisite:* AGEC 360 or instructor's consent. Study of world food production problems and opportunities in feeding an ever-increasing population. Assessment of world food production, poverty, government policies, multi-national businesses and cultures. Investigates methods of increasing production.

**AGEC 475. SPECIAL TOPICS IN AGRICULTURE ECONOMICS. (1-3)** *Prerequisite:* Consent of instructor. Special topics acquaint advanced undergraduate students with scientific developments of current interest in agriculture. Appropriate topic titles are assigned. Lecture and assignments vary with credit. May be repeated with change in content.

**AGEC 482. DEVELOPMENT OF AGRICULTURAL RESOURCES FOR RECREATION. (3)** *Prerequisite:* Upper division or instructor's consent. Principles in developing physical facilities for various rural recreational enterprises are studied. Topics include enterprise selection, program planning, site selection, promotion financing, management and construction of facilities.

#### AGED- AGRICULTURAL EDUCATION DEPARTMENT OF AGRICULTURE

**AGED 250 (EDU 250). INTRODUCTION TO TEACHER EDUCATION IN AGRICULTURE. (3)** An analysis of the philosophical, psychological, and sociological foundations of education in American academic and career-technical public education. Qualification, performance and general expectation of the agriculture teacher are stressed. Students must complete a 25-hour pre-student teaching experience in the public schools. Periodic class trips are taken to observe various agriculture education departments. This course may be taken instead of EDU 250.

**AGED 470. METHODS OF TEACHING IN AGRICULTURAL EDUCATION. (3)** *Prerequisites:* AGED 250 (EDU 250), EXED 330, AGRI 398, PSY 310, and admission to student teaching. Experiences related to the teaching of agriculture education, further preparing the prospective teacher in supervised occupational experience programs. FFA activities, classroom management, and general teaching techniques. Departments are occasionally visited.

**AGED 471. ORGANIZATION AND PLANNING IN AGRICULTURAL EDUCATION. (3)** *Prerequisites:* AGED 250 (EDU 250), EXED 330, AGRI 398, PYS 310, and admission to student teaching. A teacher preparation course designed to prepare pre-service teachers for the student teaching experience and for a full-time teaching position. Unit planning, lesson preparation, and delivery comprise the major portion of this course.

**AGED 475. SELECTED TOPICS IN AGRICULTURE. (1-3)** *Prerequisite:* Consent of instructor. Special topics acquaint advanced undergraduate students with scientific developments of current interest in agriculture. Appropriate topic titles are assigned. Lecture and assignments vary with credit. May be repeated with change in content.

**AGED 489. SPECIAL PROBLEMS IN AGRICULTURAL EDUCATION. (1-3)** *Prerequisite:* Instructor's consent and 3.0 grade point average required. May be repeated to a maximum of six credits.

#### AGMC- AGRICULTURAL MECHANICS DEPARTMENT OF AGRICULTURE

**AGMC 170. INTRODUCTION TO AGRICULTURAL MECHANIZATION. (2)** *Corequisite:* AGMC 171. The topics studied in this course will be electrical power, land surveying and building construction.

**AGMC 171. INTRODUCTION TO AGRICULTURAL MECHANIZATION LABORATORY. (1)** *Corequisite:* AGMC 170. A laboratory course correlated with AGMC 170.

**AGMC 172 . LAWN AND GARDEN EQUIPMENT. (2)** *Corequisite:* AGMC 173. The student will study equipment used in the lawn and garden industry. Primary study will involve the engine and its accessories.

**AGMC 173. LAWN AND GARDEN EQUIPMENT LABORATORY. (1)** *Corequisite:* AGMC 172. The student will disassemble and repair engines and other components by following manufacturer's specification, using measuring devices, and other recommended procedures.

**AGMC 177. FARM EQUIPMENT SAFETY. (1)** *Prerequisite:* AGMC 100 or 170 or consent of instructor. Safe use and handling of hand tools, power tools, pesticides, fertilizers and agricultural equipment.

**AGMC 270. TURF MOWING EQUIPMENT MAINTENANCE. (2)** *Corequisite:* AGMC 271. Instruction in the use of modern machines and techniques to maintain cutting equipment used in the turf industry. Techniques for precision maintenance are studied.

**AGMC 271. TURF MOWING EQUIPMENT MAINTENANCE LABORATORY. (1)** *Corequisite:* AGMC 270. A laboratory course correlated with AGMC 270.

**AGMC 272. TURF EQUIPMENT MANAGEMENT AND OPERATION. (2)** Instruction in the selection, economic management and operation of turf equipment. Included are safety, pesticide certification, adjustments, basic operation, and cost analysis.

**AGMC 273. TURF EQUIPMENT MANAGEMENT AND OPERATION LABORATORY. (1)** *Corequisite:* AGMC 272. A laboratory course correlated with AGMC 272.

**AGMC 371. AGRICULTURAL MECHANICS. (2)** *Corequisite:* AGMC 372. The major focus of this course will be metal work, welding and basic metallurgy.

**AGMC 372. AGRICULTURAL MECHANICS LABORATORY. (1)** *Corequisite:* AGMC 371. A laboratory course correlated with AGMC 371. (course fee)

**AGMC 373. FARM POWER—MECHANICAL AND MACHINERY. (2)** *Corequisite:* AGMC 374. *Prerequisites:* AGMC 170, 371 or permission of instructor. The student will learn basic engine principles used on farm equipment and accessory systems. Basic principles of machinery management as applied toward proper machinery use and adjustment in the field will be addressed.

**AGMC 374. FARM POWER—MECHANICAL AND MACHINERY LABORATORY. (1)** *Corequisite:* AGMC 373. The student will disassemble and reassemble engines and machinery components.

**AGMC 377. FARM MACHINERY. (2)** *Corequisite:* AGMC 378. *Prerequisites:* AGMC 170, 371 or permission of instructor. The design principles, operation, selection and management of agricultural tillage, forage and harvesting equipment are studied. Field trips as needed.

**AGMC 378. FARM MACHINERY LABORATORY. (1)** *Corequisite:* AGMC 377. A laboratory course correlated with AGMC 377.

**AGMC 390. FARM STRUCTURES AND ENVIRONMENT. (2)** *Corequisite:* AGMC 391. *Prerequisites:* AGMC 170, 371 or permission of instructor. The basic concepts of structural and environmental problems as they relate to agricultural buildings, analysis of materials and their selection for agriculture buildings are presented. Design of light-framed structures and the use of environmental controls in livestock and product storage buildings, building codes and their effects on farm structures are reviewed. Field trips as needed.

**AGMC 391. FARM STRUCTURES AND ENVIRONMENT LABORATORY. (1)** *Corequisite:* AGMC 390. A laboratory course correlated with AGMC 390.

**AGMC 392. TURF IRRIGATION. (2)** *Corequisite:* AGMC 393. *Prerequisites:* MATH 116 and AGRO 110. Instruction in the selection, care, operation and management of irrigation systems specifically designed for commercial, industrial and residential turf settings. Special emphasis given to the unique circumstance of golf courses. Field trips required.

**AGMC 393. TURF IRRIGATION LABORATORY. (1)** *Corequisite:* AGMC 392. A laboratory course correlated with AGMC 392.

**AGMC 475. SELECTED TOPICS IN AGRICULTURE. (1-3)** *Prerequisite:* Consent of instructor. Special topics acquaint advanced undergraduate students with scientific developments of current interest in agriculture. Appropriate topic titles are assigned. Lecture and assignments vary with credit. May be repeated with change in content.



**AGRI – AGRICULTURE**  
**DEPARTMENT OF AGRICULTURE**

**AGRI 101. THE SCIENCE OF AGRICULTURE. (3)** Biological, chemical, and earth science concepts are related to agriculture. Intended for non-majors. Does not count toward agriculture major credit. [GEN ED D-I]

**AGRI 108. RURAL SOCIOLOGY. (3)** The study of rural social groups and interaction in rural and suburban America as well as in rural areas of the world. The influences of basic concepts of society and culture and the relationship of rural population, class, social institutions, and groups on rural social change. [GEN ED C]

**AGRI 175. UNIVERSITY EXPERIENCE – AGRICULTURE. (2)** *Prerequisite: For beginning college freshmen or transfer students with fewer than 24 semester hours of credit.* Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, degree programs, campus resources, and personal development. Agricultural issues, degree requirements, specializations with agriculture, career trends, and resources are addressed.

**AGRI 269. COOPERATIVE EDUCATION IN AGRICULTURE I. (1 – 4)**  
*Prerequisite: Sophomore standing.* Practical out-of-the classroom experience in a supervised work situation with a cooperating business, industry or governmental agency, emphasizing application of knowledge and skills in specified areas of agriculture. A maximum of 8 hours of cooperative education may apply toward a major in agriculture. Does not count toward agriculture minor credit. (Grading: Pass/Fail)

**AGRI 280. INTRODUCTION TO ENVIRONMENTAL SCIENCE. (3)** An introductory course devoted to the study of environmental issues. A general understanding of application of science to solution of contemporary environmental problems. [GEN ED D-I]

**AGRI 291. INTRODUCTION TO DATA ANALYSIS AND INTERPRETATION. (3)**  
*Prerequisites: Six hours of natural and/or social science and MATH 116.* Application of scientific method in acquiring new knowledge, interpretation of statistical research data; application of statistical concepts. Lecture and laboratory.

**AGRI 315. WATER IN FOOD PRODUCTION. (3)** *Prerequisite/Corequisite: Junior standing with a minimum of 12 hours of agriculture or other sciences, or combination thereof.* A study of the role of water in food production, including availability and distribution, economics, droughts and floods, pollution, waste disposal, sustainability, political rights and regulations, and ethics.

**AGRI 369. COOPERATIVE EDUCATION IN AGRICULTURE II. (1-4)**  
*Prerequisite: Junior standing.* Practical out-of-the classroom experience in a supervised work situation with a cooperating business, industry or government agency, emphasizing application of knowledge and skills in specified areas of agriculture. A maximum of 8 hours of cooperative education may apply toward a major in agriculture. Does not count toward agriculture minor credit. (Grading: Pass/Fail)

**AGRI 398. SEMINAR. (1)** *Prerequisites: Senior standing in agriculture or instructor's consent.* Current literature from representative journals in the field of agricultural research is reviewed orally by students. Discussion, one hour. A general and specific track seminar are required.

**AGRI 399. RESEARCH PROBLEMS IN AGRICULTURE. (1-3)** *Prerequisites: 3.0 and senior standing and instructor's consent.* Gives students an opportunity to pursue a thorough study of some particular phase of agriculture. Credit to be arranged. (Grading: Pass/Fail)

**AGRI 450. RURAL HEALTH AND SAFETY. (3)** Students will explore a variety of health and safety issues unique to rural populations. The interdisciplinary team concept will be used throughout the course to foster collaboration that facilitates sharing of the expertise of students and faculty.

**AGRI 469. COOPERATIVE EDUCATION IN AGRICULTURE III. (1-4)**  
*Prerequisite: Senior standing.* Practical out-of-the classroom experience in a supervised work situation with a cooperating business, industry or governmental agency, emphasizing application of knowledge and skills in specified areas of agriculture. A maximum of 8 hours of cooperative education may apply toward a major in agriculture. Does not count toward agriculture minor credit. (Grading: Pass/Fail)

**AGRI 473. INTERACTIONS IN THE CAVE AND KARST ENVIRONMENT. (3)**  
*Prerequisite: BIOL 120/121 or equivalent.* Discussion of biological diversity, groundwater and humanity's role in utilizing and conserving the unique features of karst areas and use of these areas in teaching. Not applicable to a major or minor in biology or geography and geology. Equivalent to GEOG 473.

**AGRI 475. SELECTED TOPICS IN AGRICULTURE. (1-3)** *Prerequisite: Consent of instructor.* Special topics acquaint advanced undergraduate students with scientific developments of current interest in agriculture. Appropriate topic titles are assigned. Lecture and assignments vary with credit. May be repeated with change in content.

**AGRI 491. DATA ANALYSIS AND INTERPRETATION. (3)** *Prerequisites: AGRI 291; or MATH 116, senior standing, and 3.0 cumulative GPA.* Basic concepts of statistical models and use of samples. Variation, statistical measures, distribution, tests of significance, analysis of variance and elementary experimental design, regression and correlation as related to interpretation and use of scientific data are discussed.

**AGRI 493. SUSTAINABLE AGRICULTURE. (3)** *Prerequisites: Upper division standing, minimum of 18 hours in agriculture and related areas, including at least 12 hours of plant and animal production, soils, crop protection, crop improvement, economics, or ecology; or permission of instructor.* Effect of diminishing resources, environmental pollution, and short-term economics on the sustainability of productive agriculture. Emphasis on managing crops, livestock, and other farm resources in providing an ecological-economical balance in agricultural production.

**AGRI 494. CONTEMPORARY AGRICULTURAL ISSUES. (3)** *Prerequisite: Senior standing.* An analysis of contemporary agricultural ethical issues as viewed by consumers, advocacy groups and producers. While issues may vary, topics may include: animal welfare, biotechnology, environmental protection, food quality, food policy, land use, and tobacco.

**AGRO – AGRONOMY**  
**DEPARTMENT OF AGRICULTURE**
**PLANT SCIENCE**

**AGRO 110. INTRODUCTION TO PLANT SCIENCE. (3)** Principles of plant growth and development are applied to agriculture.

**AGRO 111. PLANT SCIENCE LABORATORY. (1)** *Corequisite: AGRO 110.* A laboratory course correlated with AGRO 110. Laboratories coincide with lecture topics. Lab is strongly encouraged for students in the plant sciences. Lab fee required.

**AGRO 310. PEST MANAGEMENT. (3)** *Prerequisites: AGRO 110 and CHEM 105 or equivalent.* Identification and management of insects, diseases and weeds of major importance in agronomic crops, turfgrasses and landscape plantings.

**AGRO 311. AGRONOMY. (3)** *Prerequisite: AGRO 110.* Principles of growth and development of agronomic plants and their management. Special consideration is given to Kentucky's major agronomic crops.

**AGRO 320. CROP PHYSIOLOGY. (3)** *Prerequisites: AGRO 110, BIOL 120 and CHEM 105 or equivalent.* Effects of various physiological and environmental factors on crop production are discussed.

**AGRO 409. WEED SCIENCE. (2)** *Prerequisites: BIOL 120 or AGRO 110; CHEM 105 and 107 or equivalent, Corequisite: AGRO 410.* Identification of prominent weed species; relationship of weeds to crop production problems; control measures, both physical and chemical, are presented.

**AGRO 410. WEED SCIENCE LABORATORY. (1)** *Corequisite: AGRO 409.* A laboratory course correlated with AGRO 409.

**AGRO 414. CROP IMPROVEMENT. (3)** *Prerequisites: Six hours of plant science plus upper division standing.* Identification, development, and utilization of genetic differences in the improvement of cultivated plants.

**AGRO 420. FORAGE CROPS. (2)** *Prerequisites: AGRO 110, 350 and BIOL 120. Corequisite: AGRO 421.* Distribution, improvement, morphology, culture, harvesting and utilization of forage crops are presented.

**AGRO 421. FORAGE CROPS LABORATORY. (1)** *Corequisite: AGRO 420.* A laboratory course correlated with AGRO 420.

**AGRO 422. FIELD CROPS. (3)** *Prerequisites: AGRO 110, and 350, BIOL 120 or consent of instructor.* Distribution, improvement, morphology, culture, harvesting and utilization of field crops are presented.

**SOIL SCIENCE**

**AGRO 350. SOILS. (3)** *Prerequisites: CHEM 105 and 106 or equivalent.* A basic study of soil properties and processes emphasizing soil management and its application to agriculture.

**AGRO 351. SOILS LABORATORY. (1)** *Pre/Corequisite: AGRO 350.* A laboratory course correlated with AGRO 350. Laboratory exercises and experiences to supplement lecture topics.

## Course Descriptions

**AGRO 352. SOIL FERTILITY AND FERTILIZERS. (3)** *Prerequisite: AGRO 350 and AGRO 110.* Soil reactions of elements essential for plant growth and development, sources and manufacture of fertilizer materials, use of fertilizers and lime, use of sound management practices are stressed.

**AGRO 452. SOIL MICROBIOLOGY. (3)** *Prerequisite: AGRO 350.* Soil microbial populations and systems and their influence on plant nutrition, soil organic matter, its decomposition and other soil microbial biochemical processes are presented.

**AGRO 454. SOIL MANAGEMENT AND CONSERVATION. (3)** *Prerequisite: AGRO 350.* Economic utilization of land for agricultural, recreation and public purposes based on location and capability characteristics; interpretation and application of soil survey information for best interests in crop production, conservation, public and industrial use; practice in designing land use maps are stressed.

**AGRO 455. SOIL CHEMISTRY. (2)** *Corequisite: AGRO 456. Prerequisite: AGRO 350.* Analytical techniques used in soil chemistry and soil fertility; studies nutrient determination, colloidal systems, chemical properties related to plant nutrition.

**AGRO 456. SOIL CHEMISTRY LABORATORY. (1)** *Corequisite: AGRO 455.* A laboratory course correlated with AGRO 455.

**AGRO 457. SOIL FORMATION, CLASSIFICATION AND MAPPING. (2)** *Corequisite: AGRO 458. Prerequisite: AGRO 350 and permission of instructor.* Soil origin; classification schemes; profile description, mapping and interpretation of soil survey information emphasizing Kentucky soils, are discussed.

**AGRO 458. SOIL FORMATION, CLASSIFICATION AND MAPPING LABORATORY. (1)** *Corequisite: AGRO 457.* A laboratory course correlated with AGRO 457.

**AGRO 475. SELECTED TOPICS IN AGRICULTURE. (1-3)** *Prerequisite: Consent of instructor.* Special topics acquaint advanced undergraduate students with scientific developments of current interest in agriculture. Appropriate topic titles are assigned. Lecture and assignments vary with credit. May be repeated with change in content.

### AH – ALLIED HEALTH DEPARTMENT OF ALLIED HEALTH

**AH 101. INTRODUCTION TO PARAMEDICINE I. (9)** *Prerequisite: EMT-B Certification. Corequisite: AH 102.* Concepts, roles and responsibilities as related to paramedicine; will cover assessment, communication, pharmacology/medicine administration, and advanced airway.

**AH 102. INTRODUCTION TO PARAMEDICINE I. (1)** *Prerequisite: EMT-B Certification. Corequisite: AH 101.* Concepts, roles and responsibilities as related to paramedicine; will cover assessment, communication, pharmacology/medicine administration, and advanced airway. Students are responsible for arranging own transportation to assigned sites. (course fee) (Grading: Pass/Fail)

**AH 103. INTRODUCTION TO PARAMEDICINE II. (9)** *Prerequisite: AH 101. Corequisite: AH 104.* Patient assessment, trauma management, and cardiology/pulmonology management.

**AH 104. INTRODUCTION TO PARAMEDICINE LAB II. (1)** *Prerequisite: AH 102. Corequisite: AH 103.* Patient assessment, trauma management, and cardiology/pulmonology management. Students are responsible for arranging own transportation to assigned sites. (course fee) (Grading: Pass/Fail)

**AH 105. INTRODUCTION TO PARAMEDICINE III. (5)** *Prerequisite: AH 103. Corequisite: AH 106.* Neurology, immune system, gastroenterology/intestinal/renal, toxicology, and psychiatric emergencies.

**AH 106. INTRODUCTION TO PARAMEDICINE LAB III. (1)** *Prerequisite: AH 104. Corequisite: AH 105.* Neurology, immune system, gastroenterology/intestinal/renal, toxicology, and psychiatric emergencies. Students are responsible for arranging own transportation to assigned sites. (course fee) (Grading: Pass/Fail)

**AH 107. INTRODUCTION TO PARAMEDICINE IV. (1)** *Prerequisite: AH 105. Corequisite: AH 108.* OB/GYN emergencies.

**AH 108. PARAMEDICINE LAB IV. (1)** *Prerequisite: AH 104. Corequisite: AH 105.* OB/GYN emergencies. Students are responsible for arranging own transportation to assigned sites. (course fee) (Grading: Pass/Fail)

**AH 109. PARAMEDICINE V. (9)** *Prerequisite: AH 104. Corequisite: AH 110.* Pediatrics, geriatrics, patients with special challenges, rescue, hazardous materials/biochemical scenes, and determination of death.

**AH 110. PARAMEDICINE LAB V. (1)** *Prerequisite: AH 108. Corequisite: AH 109.* Pediatrics, geriatrics, patients with special challenges, rescue, hazardous materials/biochemical scenes, and determination of death. Students are responsible for arranging own transportation to assigned sites. (course fee) (Grading: Pass/Fail)

**AH 111. PARAMEDICINE LAB VI. (2)** *Prerequisites: AH 109, 110.* Application/integration of paramedicine concepts in the field environment through a 500 hour internship. Students are responsible for arranging own transportation to assigned sites. (course fee) (Grading: Pass/Fail)

**AH 190. INTRODUCTION TO ALLIED HEALTH PROFESSIONALS. (2)** This course provides an overview of the history, current practice, and wellness issues, and future potential for allied health professionals. Legal, ethical, and interpersonal aspects of patient care are introduced. Educational requirements, credentialing procedures and career opportunities are outlined. Observation of an allied health professional is required.

**AH 290. MEDICAL TERMINOLOGY. (2)** A course designed to acquaint the student with the specialized language of medicine and to develop communication skills in areas where use of medical terms is necessary and appropriate. Equivalent to HIM 290.

### AMS – ARCHITECTURAL MANUFACTURING SCIENCES DEPARTMENT OF ARCHITECTURAL AND MANUFACTURING SCIENCES

**AMS 102. TECHNICAL GRAPHICS. (1)** An introduction to the basic skills and applications of drawing techniques. Sketching and instrument drafting with emphasis on line weights, lettering, equipment, use, geometric construction and pictorial drawings.

**AMS 103. INTRODUCTION TO WOOD PRODUCTS TECHNOLOGY. (3)** A beginning wood-working course dealing with both hand and machine tool processes. Students are required to plan, construct and finish a furniture item. (course fee)

**AMS 105. SURVEY OF DRAFTING. (3)** A survey of basic techniques and practices in several areas of mechanical and architectural drafting. Major areas covered are lettering, dimensioning, floor planning, perspectives, pictorial drawing, three view drawing and other mechanical drafting practices. This course may not be used by industrial education or technology majors to meet program requirements.

**AMS 120. BASIC ELECTRICITY. (3)** *Co-requisite: MATH 118 or equivalent.* Basic concepts of AC and DC current, various types of circuits, electron theory and electrical laws. (course fee)

**AMS 140. INTRODUCTION TO OCCUPATIONAL SAFETY. (1)** An introduction to workplace safety, health, and environmental issues in manufacturing and construction organizations. (course fee)

**AMS 151. ARCHITECTURAL GRAPHICS. (3)** An introduction to the basic skills and applications of drawing and modeling techniques. Sketching and drafting with emphasis on line weights, lettering, equipment, geometric construction and pictorial drawings. Conventional modeling and an introduction to software applications with emphasis on 3D form, context, and material delineation. (course fee)

**AMS 163. ARCHITECTURAL DRAFTING. (3)** An introductory course using sketching and CADD software to teach orthographic projection, isometric projection, sections, dimensioning, and 3D modeling. This course designed for majors in the Architectural Sciences Concentration, Interior Design, Civil Engineering, Geography and Textiles. (course fee)

**AMS 175. UNIVERSITY EXPERIENCE-AMS. (2)** *Prerequisite: For beginning college freshmen or transfer students with fewer than 24 semester hours of credit.* Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, degree programs, campus resources and personal development. Special attention is given to educational requirements, careers and resources in the fields of construction management, manufacturing and industrial distribution, architectural sciences, technology management and technology education. (course fee)

**AMS 180. INTRODUCTION TO ARCHITECTURAL PRACTICES. (3)** *Prerequisite – Corequisite HIST 119 or 120.* Survey of the history of architectural theory and application from antiquity to today. The primary vehicle of investigation will be the architectural artifacts of the built environment and the philosophical rationale behind the motivation for their creation. [GEN ED B-II] (course fee)

**AMS 205. CADD FOR MANUFACTURING. (3)** A solids modeling course designed to develop skills on the use of a PC based mechanical design software to build feature-based, parametric solid models of parts and assemblies. Manufacturing drawings – orthographics – of those parts and assemblies are produced. (course fee)

**AMS 210. INTRODUCTION TO TECHNOLOGY. (3)** A study of technology and ethics in technology with laboratory activities in manufacturing, construction, communication, power and transportation. (course fee) [GEN ED D-I]

**AMS 213. ELECTRICAL DRAFTING. (3)** For students majoring in programs related to electricity and/or electronics. It includes interactive computer graphics, dimensioning, electrical symbols, orthographic projection and electrical and/or electronic diagrams.

**AMS 217. INDUSTRIAL MATERIALS. (3)** Survey of materials concepts and their applications to the production of manufactured items. Included will be basic procedures for testing manufacturing materials and discussions of materials processing concepts and cautions. (course fee)

**AMS 227. INTRODUCTION TO MANUFACTURING METHODS. (3)** A descriptive study of manufacturing processes using production equipment with laboratory experiences in forming and separating processes. (course fee)

**AMS 251. 3D MODELING AND IMAGING. (3)** *Prerequisites: AMS 151, 163.* Introduction to 3D modeling, animation and visualization techniques. Topics include, 3D solids, perspective projection, lighting, cameras, texturing, walk-through and fly-by animations using current industry software. (course fee)

**AMS 261. CONSTRUCTION METHODS AND MATERIALS. (3)** *Corequisite: AMS 262.* Survey of the basic methods and materials used for light commercial and residential construction applications. Addresses general requirements and site work, along with primary materials and techniques of regional construction practices. (course fee)

**AMS 262. CONSTRUCTION LABORATORY. (1)** *Corequisite: AMS 261.* The laboratory to accompany AMS 261. Hands-on experience with basic construction methods and materials used in light commercial and residential construction, including framing, concrete, masonry, and miscellaneous metals. (course fee)

**AMS 263. ARCHITECTURE DOCUMENTATION I. (3)** *Prerequisites: AMS 163 with a grade of C or higher; AMS 261.* Planning and producing residential construction drawings. Residential construction standards and codes; building materials research and specification. (course fee)

**AMS 271. INDUSTRIAL STATISTICS. (3)** *Prerequisite: MATH 116 or equivalent.* A study of statistical techniques typically used in industry for purposes of Statistical Process Control, material science research, and system planning and operation. (course fee)

**AMS 273. ARCHITECTURAL DETAILING. (3)** *Prerequisite: AMS 320.* Architectural detailing in terms of function, contractibility, and aesthetics. A transition from architectural ideas to built reality. Detailing as a means of controlling: water, air heat flow, sound, aging, and load transfer. Detailing with respect to economics, ease of assembly, efficiency, and problem solving. Lecture and laboratory. (course fee)

**AMS 282. ARCHITECTURAL STRUCTURES. (3)** *Prerequisites: AMS 261, MATH 117 (or equivalent), PHYS 201.* Survey of concepts, knowledge, and methods of statics and strength of materials with emphasis on factors that influence the development of architectural space and form. Includes qualitative and quantitative solution methods, focusing on application versus theoretical principles. (course fee)

**AMS 300. WOOD FINISHING PROCESSES. (3)** *Prerequisite: Junior standing.* A survey of industrial finishing materials, equipment and processes. (course fee)

**AMS 301. SCIENCE OF FOOD PROCESSING. (3)** *Prerequisite: CHEM 105; BIOL 207/208.* Basic concepts of transport and storage of liquids and solids, and heating and cooling of food ingredients and food products. (course fee)

**AMS 303. FOOD LAWS AND REGULATIONS. (3)** *Prerequisite: AMS 301.* History, development, and enforcement of major federal food statutes and regulations, with emphasis on the Federal Food, Drug, and Cosmetic Act (FDCA), the Food and Drug Administration (FDA) and the US Department of Agriculture (USDA) regulations. (course fee)

**AMS 305. BUILDING CODES. (3)** *Prerequisites: AMS 261, 263.* Introduction to format and content of current building codes, including interpretation and code research for application to residential and commercial projects, with emphasis on building design. (course fee)

**AMS 308. GRAPHIC COMMUNICATION. (3)** *Prerequisite: AMS 163 or AMS 205 or JOUR 231.* Includes preparation of camera copy, line copy, photography, halftone photography, making color separations, and offset platemaking. Students explore offset printing and photographic screen printing of half-tone images.

**AMS 310. WORK DESIGN/ERGONOMICS. (3)** *Prerequisite: MATH 116.* Design for people-machine interaction, including an introduction to the relevant underlying human sciences. Theory, data, and measurement problems in human information processing, training and industrial safety. (course fee)

**AMS 311. DIGITAL SYSTEMS SIMULATION. (3)** *Prerequisite: AMS 271.* Analysis of systems using both analytic methods and computer simulation. Empirical and theoretical models of arrival and service processes. State spaces and state transition probabilities. Simulation of queuing and manufacturing systems. Continuous time analysis of manufacturing systems. (course fee)

**AMS 314. ADVANCED CADD FOR MANUFACTURING. (3)** *Prerequisite: AMS 205.* Study of 2D and 3D CADD applications, related assembly and working drawings, tolerancing, geometric dimensioning and tolerancing (GD&T) and quality issues. A team approach will be used in class. (course fee)

**AMS 320. ARCHITECTURAL DOCUMENTATION. (4)** *Prerequisites: AMS 163; AMS 261.* Planning and drawing a complete set of construction documents with specifications. Construction standards & codes; residential and light commercial construction; structural details and sections; building materials specifications and source, and sizing of structural components. (course fee)

**AMS 325. SURVEY OF BUILDING SYSTEMS. (3)** *Prerequisites: AMS 163, 261 and MATH 118 or equivalent.* A study of National Electric Code, BOCA National Building Code, Standard Building Code, Local Building Code, structural systems, egress system, residential and commercial wiring, blueprint reading, HVAC, and energy conservation techniques. (course fee)

**AMS 328. ROBOTICS AND MACHINE VISION. (3)** *Prerequisite: AMS 227.* Introduction to capabilities and limitations of robotic and machine vision systems, as well as fundamentals of programming. Laboratory activities are focused toward manufacturing applications. (course fee)

**AMS 330. INVESTIGATION IN SECONDARY EDUCATION. (1, 2, OR 3)** *Prerequisite: Junior standing or permission of the department head.* Individual investigations of methods and materials, curriculum problems, the secondary school, and other areas of need or interest related to secondary education. (course fee)

**AMS 332. SOLAR TECHNOLOGY APPLICATIONS. (3)** *Prerequisite: MATH 118 or MATH 117.* Practical applications of basic laws of physics governing behavior of mechanical and electrical components to convert solar energy to electricity. Discussion of passive and active utilization of solar energy to provide domestic hot water and space heating. Solar geometry and system design with emphasis on efficiency. Laboratory fee and travel to WKU Center for Research and Development required.

**AMS 331. METHODS IN VOCATIONAL EDUCATION. (3)** The preparation and application of instructional materials, methods, techniques, and technology relevant to teaching vocational, industrial, and technical subjects.

**AMS 332. FOUNDATIONS OF INDUSTRIAL, VOCATIONAL, AND CAREER EDUCATION. (3)** The characteristics and purposes of American public education with emphasis on vocational, career, and general education; the place of relationships and differences in preparing people for occupational careers.

**AMS 333. INSTRUCTIONAL MEDIA AND CURRICULUM IN INDUSTRIAL, VOCATIONAL, AND CAREER EDUCATION. (3)** Curriculum review/development and the selection, sources, and use of technology suitable for industrial, vocational, and technical education.

**AMS 334. WORKSHOP IN VOCATIONAL EDUCATION CLASSROOM/ LABORATORY MANAGEMENT. (3)** *Prerequisite: Permission of the instructor.* A study of the theory and principles related to classroom/laboratory management and their application in planning, organizing, and managing a vocational technical learning environment. Emphasis is given to the management of facilities, instructional areas, and work/storage areas, as well as safety and discipline.

**AMS 340. MANUFACTURING OPERATIONS I. (3)** *Prerequisites: AMS 327; AMS 371; AMS 311 AND AMS 205.* Survey of methods for designing products for improved quality and manufacturability in industry, and designing processes for improved reliability. Includes "concurrent design of products and processes" and rapid introduction of new products to markets, rapid prototyping methods and applications, process optimization, testing and production planning. Note: AMS 340 and 341 must be taken in consecutive semesters. (course fee)

**AMS 341. MANUFACTURING OPERATIONS II. (3)** *Prerequisite: AMS 340.* Survey of methods for testing and production planning, pilot production runs, production cost estimating. Includes introduction of new products to production, planning for quality, measurement of associated costs, process development and optimization. Lecture and laboratory. Note: AMS 341 must be preceded by AMS 340 in the previous semester. (course fee)

**AMS 342. MANUFACTURING OPERATIONS. (3)** *Prerequisite: AMS 271 or consent of the instructor.* Survey of methods for designing products for improved quality and manufacturability in industry and designing manufacturing processes for improved reliability. (course fee)



## Course Descriptions

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**AMS 343. AUTOMATED SYSTEMS. (3)** *Prerequisite: AMS 120 or approval of instructor.* Techniques of automated systems dealing with material handling, PLC and off-the-shelf computer control systems. Programming the microprocessor for control applications may be included. Lecture and laboratory. (course fee)

**AMS 351. BUILDING INFORMATION MODELING. (3)** *Prerequisites: AMS 251; AMS 363 with a grade of "C" or higher.* Advanced course in architectural modeling, focusing on the concepts and processes of creating object-oriented databases by embedding relevant building information into parametric modeling systems, and extracting building data using standard industry software applications. (course fee)

**AMS 352. FOOD PROCESSING: UNIT OPERATIONS. (3)** *Prerequisite: AMS 307.* An overview of unit operations and processing techniques used in food processing industry. Topics include thermal processing, low temperature preservation, dehydration, irradiation, enzyme technology, separation and concentration, evaporation and distillation, and high-pressure and minimal processing methods.

**AMS 355. SYSTEMS DESIGN. (3)** *Prerequisite: MATH 116.* A comprehensive study of manufacturing organizations and their administration involving facilities layout, design of work systems, forecasting and decision making, planning for facilities and equipment. (Note: This course is for the Technology Management major or non-AMS majors.)

**AMS 356. SYSTEMS DESIGN AND OPERATION. (3)** *Prerequisites: Junior standing, MATH 118 or 116 and 117, AMS 271.* A study of manufacturing organizations and their administration, facilities layout, work systems, forecasting and decision making. Applications of resource planning determining product demand, controlling inventory, goods and services. Lecture. (course fee)

**AMS 363. ARCHITECTURE DOCUMENTATION II. (3)** *Prerequisites: AMS 263 with grade of "C" or higher; AMS 273 (formerly AMS 373).* Planning and producing commercial construction drawings. Commercial construction standards and codes; building materials research and specification. (course fee)

**AMS 365. SYSTEMS OPERATIONS. (3)** *Prerequisite: AMS 355.* Practical application of time study, predetermined time systems, incentive payment plans, and contemporary methods for controlling industrial inventory, goods, and services along with manufacturing processes. (Note: This course is for the Technology Management or non-AMS Majors.)

**AMS 367. SUPERVISED WORK EXPERIENCE IN INDUSTRY. (1-6)** Advisor approval required. Supervised employment in industry. Written reports required. (course fee)

**AMS 368. PROBLEM SOLVING/RESEARCH. (3)** *Prerequisite: AMS 271.* An application oriented introduction to basic analytical tools for the solution of practical industrial problems. Focusing on developing qualitative and quantitative literacy and analytic skills, the emphasis will be on data analysis, graphics and simple experiments applied to typical problems encountered in architectural and manufacturing practice. (course fee)

**AMS 369. ARCHITECTURAL DESIGN STUDIO I. (4)** *Prerequisites: AMS 263.* Design processes using architectural projects as case studies, design experience includes schematic design, program development, design methodologies, graphic and verbal communication skills, and environmental influences on building design: geographic location, daylighting, natural ventilation, size and shape. Lecture and laboratory. (course fee)

**AMS 370. COMPUTER NUMERICAL CONTROL. (3)** *Prerequisite: AMS 227 or consent of the instructor.* Computer-aided manufacturing techniques including manual and computer-assisted numerical control. Students program and operate CNC machining centers. Lecture and laboratory. (course fee)

**AMS 371. QUALITY ASSURANCE. (3)** *Prerequisite: MATH 183 or AMS 271.* A study of quality assurance techniques. Application of Statistical Process Control (SPC), acceptance sampling, military standards 105D & 414. Quality organizations and standards. (course fee)

**AMS 372. COMMERCIAL ARCHITECTURAL FLOOR PLANNING. (3)** *Prerequisite: AMS 320.* Planning and drawing small commercial buildings with CAD and conventional techniques, study of specifications, identification of sources of materials, acceptable design and drafting techniques emphasized. Lecture and Laboratory. (course fee)

**AMS 375. SPECIAL ARCHITECTURAL PROBLEMS. (3)** *Prerequisite: AMS 320.* A research project is required that includes a written report and an innovative design of a non-standard dwelling done on CAD or with conventional drafting tools. Lecture and laboratory. (course fee)

**AMS 378. ARCHITECTURAL/ PROFESSIONAL PRESENTATION. (3)** *Prerequisites: AMS 320; AMS 360.* Techniques to present an idea, concept, architectural design, and individual talents. Techniques include architectural modeling, both physical and virtual; presentation graphics; virtual walk-through and fly-by; portfolio design; and web page development. Lecture and laboratory. (course fee)

**AMS 380. INDEPENDENT STUDY IN INDUSTRIAL SCIENCES. (3)** *Prerequisite: Junior standing. Special permission required prior to enrollment.* This course is designed for the undergraduate student who would like to study different aspects of technology that may or may not be included in existing formal courses of instruction. Both the theoretical and empirical parts of the investigation will be reported in a formal document. (course fee)

**AMS 381. FOOD QUALITY ASSURANCE. (3)** *Prerequisite: AMS 301 or BIOL 207.* Theory and application of quality assurance programs for the food processing industry, with emphasis on good manufacturing practices, sanitation programs, and audits. (course fee)

**AMS 385. FURNITURE DESIGN AND CONSTRUCTION. (3)** *Prerequisite: AMS 103.* The design, fabrication and finishing of a furniture product with emphasis on appropriate joinery, design elements and principles and the appropriate use of wood products. (course fee)

**AMS 389. COOPERATIVE WORK EXPERIENCE. (3)** Co-op credit may be earned in most technology programs. Students must be registered for credit and work with Cooperative Education in the Career Services Center and coordinate plans with their area advisor.

**AMS 390. PROJECT MANAGEMENT. (3)** *Prerequisite: Junior standing or AMS major.* Core concepts of project management based on processes of initiating, planning, executing, controlling, and closing projects. Topics include project proposals, project selection, scope definition, CPM and PERT scheduling, budgeting, control techniques and project manager skills. (course fee)

**AMS 391. RELIABILITY AND PROBABILITY. (3)** *Prerequisite: AMS 371.* Describes how reliability is defined and specified, defines methods of designing reliability, and includes methods of improving reliability of a piece of equipment or a system. (course fee)

**AMS 392. QUALITY MANAGEMENT. (3)** *Prerequisite: AMS 343.* Survey of the quality management system; includes organizational structure, responsibilities, procedures and resources. Content covers ISO 9000 and QS 9000 series standard compliance to performance for product improvement and applications. Students may be expected to provide own transportation to field sites. (course fee)

**AMS 394. LEAN MANUFACTURING. (3)** *Prerequisite: AMS 356.* Introduction to the production system and the role of inventory, market characterization, aggregate planning, lean manufacturing and the just-in-time philosophy. (course fee)

**AMS 395. FUNDAMENTALS OF HACCP. (3)** *Prerequisite: AMS 301.* Development and implementation of the Hazard Analysis and Critical Control Point (HACCP) system and its application in the food processing industry.

**AMS 396. INTRODUCTION TO SUPPLY CHAIN MANAGEMENT. (3)** *Prerequisite: AMS 356 or AMS 371.* Introduction to supply chain management and risk pooling, logistics network configuration, the value of information, customer value and decision support systems. Software fee required. (course fee)

**AMS 398. INTERNSHIP I. (1)** *Prerequisite: 15 semester hours in Industrial Sciences or junior standing with permission of the instructor.* Advisor approved, discipline-specific internship requiring 200 hours of work experience in business or industry. (course fee)

**AMS 399. INTERNSHIP II. (1)** *Prerequisite: AMS 398.* Advisor approved, discipline-specific internship requiring 200 hours of work experience in business or industry. (course fee)

**AMS 401. CONTEMPORARY ISSUES IN ARCHITECTURE AND MANUFACTURING. (1)** *Prerequisite: Senior standing.* Contemporary issues reflecting current and emerging technologies, policies and practices in architecture and manufacturing will be studied. Guest presenters from business and industry will be presenting lectures. Students will prepare a series of papers representing their own investigation.

**AMS 410. INDUSTRIAL SCIENCE PROBLEMS. (3)** *Prerequisites: Senior or graduate standing in Industrial Education, and special permission.* This course provides an opportunity for individual study and/or research relative to problems in industrial education. Prior approval necessary before registering for this course.

**AMS 417. ADVANCED MANUFACTURING MATERIALS. (3)** *Prerequisites:* AMS 217, 227, or consent of the instructor. Survey of advanced materials science concepts and their applications to the production of manufacturing materials. Includes the effect of different materials processing techniques on property-microstructure-process interactions, and how they affect the manufacturing concepts. Lecture and laboratory. (course fee)

**AMS 427. ADVANCED MANUFACTURING PROCESSES. (3)** *Prerequisite:* AMS 227. A descriptive study of advanced manufacturing processes and production equipment with laboratory experimentation in forming, solidification and material removal processes. Lecture and laboratory. (course fee)

**AMS 430. TECHNOLOGY MANAGEMENT/SUPERVISION/TEAM BUILDING. (3)** *Prerequisite:* Junior standing. This course will provide an introduction to the fundamentals of industrial supervision. Students will develop the skills, knowledge, and philosophies required to function in a highly technical, industrial environment in a supervisory capacity. Content includes a study of leadership, management, management-labor relations, supervisory intuition, and various legal issues. (course fee)

**AMS 435. SUPERVISED STUDENT TEACHING IN VOCATIONAL, INDUSTRIAL, AND TECHNICAL EDUCATION. (4)** Observation, participation, and supervised teaching in vocational, industrial, and technical education. (course fee)

**AMS 443. FOOD PACKAGING. (3)** *Prerequisite:* AMS 301. Principles of packaging science and technology, packaging materials, machinery and equipment, and packaging requirements applied to preservation and distribution of food products.

**AMS 452. PRODUCTION WOODWORKING. (3)** *Prerequisite:* AMS 103. The design, planning, and tooling for mass production of a moderately complex wood product. Students participate in a group mass production endeavor. Lecture and laboratory. (course fee)

**AMS 462. COMMODITY FOOD PROCESSING. (3)** *Prerequisite:* AMS 352. Principles of food processing, stages and operations, and product formulations for processing and manufacturing different categories of food products such as beverages, cereals, dairy, meats and poultry, and fruits and vegetables. (course fee)

**AMS 463. ARCHITECTURE DOCUMENTATION III. (3)** *Prerequisite:* AMS 282; AMS 363 with a grade of "C" or higher; AMS 325. Advanced planning and producing commercial construction drawings relating to additions, renovations, and demolition. Commercial construction standards and codes; building materials research and specification; systems coordination. (course fee)

**AMS 465. INDUSTRIAL TECHNOLOGY FOR ELEMENTARY TEACHERS. (3)** A course designed for elementary teachers and those preparing to enter the field of elementary education. The course involves a study of the philosophy, purposes, organization and correlation of industrial arts activities as they apply to the elementary school program. Lecture and laboratory.

**AMS 469. ARCHITECTURAL DESIGN STUDIO II. (4)** *Prerequisites:* AMS 273 (formerly AMS 373), 282, 325, 369 (formerly 360). Advanced analysis, synthesis, and appraisal techniques responding to contemporary architectural issues. Theory and practice of architecture as art and science. In-depth studio experience in: schematic design and design development; selection and conceptual design of structural systems; mechanical and electrical systems; materials and connective systems, specifications and building costs with focus on sustainable design. Lecture and laboratory. (Note: Course pass required.) (course fee)

**AMS 470. LAND DEVELOPMENT. (4)** *Prerequisites:* CE 216; AMS 325; AMS 373. Land development in terms of promoting: a community, human well-being, environmental sustainability, green space and economic growth. Site analysis, climatic and regional analysis, cultural and contextual analysis, and human pattern language will be investigated and applied. Lecture and laboratory. (Note: Course pass required.) (course fee)

**AMS 471. DESIGN OF INDUSTRIAL EXPERIMENTS. (3)** *Prerequisites:* AMS 271; AMS 371. Survey of statistical experimentation methods to improve quality of products and processes in industry. Includes the planning for design of experiments and quality tools that will be involved, designing the experiments with an understanding of different types of factors and, important aspects of running the experiments and analysis of data.

**AMS 475. SELECTED TOPICS IN INDUSTRY. (1-3)** *Prerequisite:* Junior standing. Varying topics of significant interest and current developments in manufacturing technology. (course fee)

**AMS 480. INTRO TO COMPUTER INTEGRATED MANUFACTURING. (3)** *Prerequisite:* AMS 370. A survey of automation as it relates to manufacturing including numerical control systems, robotics, computer-assisted production, and other automated systems. (course fee)

**AMS 488. COMPREHENSIVE DESIGN. (3)** *Prerequisite:* Senior standing and consent of instructor. Identification and collaboration with a real world client, architectural proposals, project programmatic requirements, project research, site analysis, building codes and regulations, professional portfolio. (course fee)

**AMS 490. SENIOR RESEARCH. (3)** *Prerequisite:* Completion of a 9/10 cr. hr. specialty area in either Architectural or Manufacturing Sciences. Students work on research projects utilizing skills and knowledge from prior courses in the program. Projects performed, when possible, for local industry or architectural/construction firms. Lecture and laboratory. (course fee)

**AMS 495. ACOUSTIC GUITAR CONSTRUCTION. (4)** *Prerequisite:* AMS 103. Deals with the design and fabrication of a steel string or classical guitar and related tooling using the Haile method of construction. Lecture and laboratory. (course fee)

**AMS 489. COOPERATIVE EDUCATION. (3)** Co-op credit may be earned in most technology programs. Students must be registered for credit and work with Cooperative Education in the Career Services Center and coordinate plans with their area advisor.

**AMS 435. SUPERVISED STUDENT TEACHING IN VOCATIONAL, INDUSTRIAL, AND TECHNICAL EDUCATION. (4)** Observation, participation, and supervised teaching in vocational, industrial, and technical education.

#### ANSC – ANIMAL SCIENCE DEPARTMENT OF AGRICULTURE

**ANSC 140. INTRODUCTION TO ANIMAL SCIENCE. (3)** An introduction to the animal industry on a state, national and global basis, basic principles of reproduction and endocrinology, breeding and genetics, animal products and diseases. Emphasis is placed upon farm animal classification.

**ANSC 141. INTRODUCTION TO ANIMAL SCIENCE LABORATORY. (1)** *Prerequisite or Corequisite:* ANSC 140. A laboratory course correlated with AGRI 140. Laboratories are planned to coincide with lecture topics.

**ANSC 232. BASIC EQUITATION. (2)** For students with little previous experience in horsemanship. Basic disciplines of hunt seat and stock seat horsemanship and selection, care and use of horses and equipment are included. (course fee)  
[GEN ED F]

**ANSC 240. LIVESTOCK MANAGEMENT. (2)** *Corequisite:* ANSC 241. *Prerequisite:* ANSC 140. A general animal science course offering hands on experience in management of beef cattle, dairy cattle, sheep, swine, and horses.

**ANSC 241. LIVESTOCK MANAGEMENT LABORATORY. (1)** *Corequisite:* ANSC 240. A laboratory course correlated with ANSC 240.

**ANSC 330. HORSE PRODUCTION. (2)** *Corequisite:* ANSC 331. *Prerequisites:* ANSC 140 and 345 or approval of instructor. Principles of animal science as they relate to the horse and equine industry, characteristics of breeds, anatomy, nutrition, genetics, reproduction, behavior, training, health, breeding, management, and marketing concepts are presented.

**ANSC 331. HORSE PRODUCTION LABORATORY. (1)** *Corequisite:* ANSC 330. A laboratory course correlated with ANSC 330.

**ANSC 333. HORSE TRAINING. (2)** *Corequisite:* ANSC 334. *Prerequisites:* ANSC 330/331 or approval of instructor. The student is assigned a horse to train. Techniques for halter-breaking, gentling, grooming, lunging, saddling, driving and riding the untrained horse are included.

**ANSC 334. HORSE TRAINING LABORATORY. (1)** *Corequisite:* ANSC 333. A laboratory course correlated with ANSC 333.

**ANSC 336. CONFORMATION AND PERFORMANCE EVALUATION OF HORSES. (2)** *Prerequisite:* Approval of instructor. Evaluation and selection of horses based on conformation and athletic ability, and oral and written defense of evaluations. The importance of environment, records, genetics, and conformation in selection are discussed.

**ANSC 338. INTRODUCTORY LIVESTOCK EVALUATION AND SELECTION. (3)** *Prerequisite:* ANSC 140 or instructor's consent. Fundamental selection criteria utilized in evaluating beef cattle, hogs, sheep, dairy cattle and horses. Oral and written evaluations are included.

**ANSC 340. MEATS AND MEAT PRODUCTS. (3)** *Prerequisite:* ANSC 140 for agriculture majors. A non-technical course designed for the average consumer. The role of meats and meat products in human nutrition; meat substitutes; grading and inspection; identification and selection of wholesale and retail cuts of meat; care and storage of meat products are studied.



## Course Descriptions

**ANSC 344. PHYSIOLOGY AND ANATOMY OF DOMESTIC ANIMALS. (3)**  
*Prerequisites: BIOL 120 and ANSC 140.* Physiology and anatomy as related to livestock production, nutrition and disease emphasizing digestive, reproductive and endocrine systems.

**ANSC 345. PRINCIPLES OF ANIMAL NUTRITION. (3)** *Prerequisite: ANSC 140, BIOL 120 and CHEM 107 or equivalent.* Principles of nutrition basic to animal feeding; chemistry and physiology of nutrition: nutrient requirements for normal body functions.

**ANSC 347. ANIMAL PATHOLOGY. (3)** *Prerequisites: ANSC 140 and BIOL 120.* Distribution, nature, manner of dissemination, methods of control, prevention and eradication of infectious and parasitic diseases of domestic animals are discussed.

**ANSC 431. DAIRY PRODUCTION. (2)** *Corequisite: ANSC 432. Prerequisites: ANSC 140 and 345.* Principles of nutrition and management and their practical application to commercial dairy herds are emphasized.

**ANSC 432. DAIRY PRODUCTION LABORATORY. (1)** *Corequisite: ANSC 431.* A laboratory course correlated with ANSC 431.

**ANSC 437. PHYSIOLOGY OF REPRODUCTION IN DOMESTIC ANIMALS. (2)**  
*Corequisite: ANSC 438. Prerequisites: AGRI 140 and BIOL 120.* Endocrinology and physiology of reproductive systems; anatomical, physiological and biochemical bases of reproduction; factors affecting means of improving efficiency of reproduction, artificial insemination, synchronized estrus and related topics are presented.

**ANSC 438. PHYSIOLOGY OF REPRODUCTION IN DOMESTIC ANIMAL LABORATORY. (1)** *Corequisite: ANSC 437.* A laboratory course correlated with ANSC 437.

**ANSC 440. ADVANCED LIVESTOCK EVALUATION AND SELECTION. (3)**  
*Prerequisite: ANSC 338 or instructor's consent.* Genetic and environmental factors involved in selecting beef cattle, hogs, sheep, dairy cattle and horses. Techniques of evaluating the economically important traits of prospective breeding animals are emphasized. Students will participate in intercollegiate competition.

**ANSC 442. BEEF PRODUCTION. (2)** *Corequisite: ANSC 443. Prerequisites: ANSC 140 and 345.* History and importance of the beef cattle industry; programs and areas of production, selection, breeding, feeding and management and common diseases are included.

**ANSC 443. BEEF PRODUCTION LABORATORY. (1)** *Corequisite: ANSC 442.* A laboratory course correlated with ANSC 442.

**ANSC 444. SWINE PRODUCTION. (2)** *Corequisite: ANSC 445. Prerequisites: ANSC 140 and 345.* History and importance of the swine industry; programs and areas of production; selection, breeding, feeding and management; and common diseases are stressed.

**ANSC 445. SWINE PRODUCTION LABORATORY. (1)** *Corequisite: ANSC 444.* A laboratory course correlated with ANSC 444.

**ANSC 446. ANIMAL BREEDING. (2)** *Corequisite: ANSC 447. Prerequisites: ANSC 140, AGRI 291 and BIOL 120.* Application of genetic and statistical principles to breeding and improvement of farm animals; the role of selection in changing populations; effect of different mating systems upon improvement of farm animals are investigated.

**ANSC 447. ANIMAL BREEDING LABORATORY. (1)** *Corequisite: ANSC 446.* A laboratory course correlated with ANSC 446.

**ANSC 448. ANIMAL FEEDS AND FEEDING PRACTICES. (4)** *Prerequisite: ANSC 345.* Livestock feeds and their nutrients; functions of and requirements for nutrients; evaluation of feeds, feeding practices and formulation of rations for all species of livestock are included; techniques involved in nutrition research; readings in current literature are presented.

**ANSC 449. DOMESTIC ANIMAL NUTRITION: PRINCIPLES AND TECHNIQUES. (3)** *Prerequisites: ANSC 345, ANSC 448, CHEM 107 or 222 or instructor's consent.* Chemistry and physiology of domestic animal nutrition, nutrient metabolism. Techniques involved in nutrition research, readings in current nutrition literature. Demonstration and practical experience in digestion and balance studies with experience in laboratory methods for proximate analysis, minerals and vitamins.

**ANSC 475. SELECTED TOPICS IN AGRICULTURE. (1-3)** *Prerequisite: Consent of instructor.* Special topics acquaint advanced undergraduate students with scientific developments of current interest in agriculture. Appropriate topic titles are assigned. Lecture and assignments vary with credit. May be repeated with change in content.

## ANTH – ANTHROPOLOGY

### DEPARTMENT OF FOLK STUDIES AND ANTHROPOLOGY

**ANTH 120. INTRODUCTION TO CULTURAL ANTHROPOLOGY. (3)** Introduction to the cross-cultural study of human behavior and society. Topics normally include environment and food, economics, social and political organization, marriage and family, culture and personality, religion, social movements, and social change. [GEN ED E]

**ANTH 125. INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY. (3)** Introduction to primatology, human origins and evolution, modern human biological variation, and other topics of biological anthropology, emphasizing biological adaptations within the framework of evolutionary theory. [GEN ED C]

**ANTH 130. INTRODUCTION TO ARCHAEOLOGY. (3)** Introduction to the scientific study of the archaeological record, emphasizing location methods, recovery methods, dating methods, archaeological classification, and interpretative models. [GEN ED C]

**ANTH 135. INTRODUCTION TO LINGUISTIC ANTHROPOLOGY. (3)** Introduction to the study of the relations among language, culture, and society. Topics include language origins and history, language and gender, multilingualism, verbal art, and applied linguistic anthropology.

**ANTH 277. INTRODUCTION TO WORLD MUSIC. (3)** A cultural and functional analysis of traditional musical genres developed in world areas: Africa, America, Asia, Europe and Oceania. Emphasis will be placed on musical styles, performance practices, aesthetics, and instruments. Equivalent to FLK 277 and MUS 277. [GEN ED E]

**ANTH 300. FORENSIC ANTHROPOLOGY. (3)** *Prerequisite: ANTH 125 or BIOL 131 or junior standing.* Analysis of human skeletal remains and other evidence in a medicolegal context, emphasizing bone identification, race and sex determination, age and stature estimation, trauma and pathology assessment, and taphonomy evaluation.

**ANTH 305. PALEOANTHROPOLOGY: HUMAN ORIGINS AND EVOLUTION. (3)**  
*Prerequisite: ANTH 125 or consent of instructor; ANTH 300 recommended but not required.* Examines the origin and evolution of humans, emphasizing fundamentals of paleoanthropological research, evidence of human evolution, evolutionary theory, nonhuman primate evolution, trends in human evolution, important fossil finds and sites, and phylogenetic relationships.

**ANTH 335. OLD WORLD PREHISTORY. (3)** A survey of prehistoric indigenous developments in the Old World, focusing on regional adaptations, representative sites and artifacts, food production and complex society, and chronologies. [GEN ED E]

**ANTH 336. NEW WORLD PREHISTORY. (3)** Survey of prehistoric indigenous developments in North, Central and South America, focusing on peopling the New World, regional adaptations, representative sites and artifacts, food production and complex society, and chronologies. [GEN ED E]

**ANTH 340. PEOPLES AND CULTURES OF LATIN AMERICA. (3)** Study of the history and development of present cultures in Latin America with emphasis on economics, politics, religion, folklife and world view of indigenous, peasant and urban peoples. Equivalent to FLK 340.

**ANTH 341. PEOPLE AND CULTURES OF ASIA. (3)** Student of the cultures of South, East, and Southeast Asia with emphasis on origins, prehistoric and historic migrations, ecology, and subsistence patterns, and the origins and evolution of the major civilizations of India, China, Japan, and Vietnam. Topics include kinship and the family, religion, social organization, gender, economy, colonialism and independence, globalization and development, and maintenance of traditions in modern contexts.

**ANTH 342. PEOPLES AND CULTURES OF THE CARIBBEAN. (3)** Examination of the variety of cultural practices and social conditions found in modern-day Caribbean societies with attention to historical roots. Topics include, but are not limited to, definition of the region, religious practices, festivals, musical traditions, migration, and everyday social life and conditions. Equivalent to FLK 342.

**ANTH 343. ANTHROPOLOGY OF GENDER. (3)** A comparative study of the role gender plays in various aspects of culture. Topics include distribution of labor, environmental impact, and ideological constraints on gender constructs in a cross-cultural concept. [GEN ED E]

**ANTH 345. PEOPLES AND CULTURES OF NATIVE NORTH AMERICA. (3)** Survey of the cultures of the original peoples of North America, with emphasis on the ethnographic present. Equivalent to FLK 345.

**ANTH 350. PEOPLES AND CULTURES OF AFRICA. (3)** Survey of the cultures of Africa, with emphasis on historical development and contemporary cultural diversity. Equivalent to FLK 350. [GEN ED E]

**ANTH 366. SPECIAL TOPICS IN ANTHROPOLOGY. (3)** Opportunity for in-depth examination of anthropological topics of current disciplinary and student interest. Repeatable with different course topics for a maximum of 9 hours of credit.

**ANTH 378. SOUTHERN APPALACHIAN FOLKLIFE. (3)** Folklife of southern Appalachia, as reflected in the material folk culture, in traditional folk customs and practices, legends, anecdotes, songs, language, and literature. Equivalent to FLK 378.

**ANTH 382. MEDICAL ANTHROPOLOGY. (3)** Cross-cultural examination of definitions of health and wellness, attitudes towards and cultural construction of illness, treatments for disease and aging. Particular emphasis on examples from non-Western societies.

**ANTH 395. LABORATORY PRACTICUM IN ARCHAEOLOGY OR BIOLOGICAL ANTHROPOLOGY. (3)** *Prerequisites: ANTH 125 for biological anthropology practicum, ANTH 130 for archaeology practicum, ANTH/FLK 470 for educational displays practicum, or consent of instructor. Course pass required.* Practical experience in artifact accession, inventory, curation and documentation or in preparation of educational displays using archaeological and biological collections at the WKU Anthropology Lab. Graded pass-fail. Repeatable for 9 hours, 3 of which may count in the first 30 hours in the major or 21 hours of the minor. (Grading: Pass/Fail)

**ANTH 399. FIELD METHODS IN ETHNOGRAPHY. (3)** An examination of the history, theory, techniques, and ethics of ethnographic fieldwork, including practical fieldwork experience. Equivalent to FLK 399.

**ANTH 400. ETHNOMUSICOLOGY. (3)** Survey of the concepts and methods of ethnomusicology. Topics include history of ethnomusicology, transcription and analysis, musicians, musical instruments, music acculturation, and the function of music in society. Equivalent to FLK 400.

**ANTH 410. AFRICAN-AMERICAN MUSIC. (3)** A survey of selected musical styles created and developed by African-Americans from the 17th to the 20th century: spirituals, blues, popular music forms (e.g. soul, reggae, rap music). Emphasis will be placed on the historical factors and sociocultural trends that influenced the development of African-American music. Equivalent to FLK 410. [GEN ED E]

**ANTH 432. FIELD COURSE IN ARCHAEOLOGY. (1-9)** *Prerequisite: ANTH 130 or consent of instructor.* Includes archaeological survey, site mapping, artifact recovery, recording, and cataloging. Work is usually conducted on prehistoric Indian sites. The number of credit hours will be determined in consultation with instructor. May be repeated for a maximum of nine hours of credit.

**ANTH 434. GRAVEYARD ARCHAEOLOGY. (3)** Application of archaeological methods in the documentation of historic graveyards, emphasizing legal mandates, formation processes, subsurface prospecting, remote sensing, mapping, and headstone recording. Students must arrange own travel to field site(s). May be repeated for a maximum of 6 hours of credit. (course fee)

**ANTH 436. APPLIED ARCHAEOLOGY. (3)** *Prerequisite: ANTH 130 or consent of instructor.* Examines contract archaeology and public archaeology within the context of cultural resource management, emphasizing legal mandates, field methods, public education programs, and ethics.

**ANTH 438. ARCHAEOLOGICAL LAB METHODS. (3)** *Prerequisite: ANTH 130 or consent of instructor.* Provides practical experience in the methods and techniques for classifying and analyzing archaeological materials and interpreting the resulting data.

**ANTH 442. ECOLOGICAL AND ECONOMIC ANTHROPOLOGY. (3)** *Prerequisite: ANTH 120 or junior standing.* Analysis of economic systems and cultural adaptations to the environment of Western and non-Western societies with particular attention paid to the Caribbean and/or Latin America.

**ANTH 446. ANTHROPOLOGY OF RELIGION. (3)** A cross-cultural examination of religious beliefs and practices. Topics include myth, ritual, shamanism and healing, and the role of religion in social control and social change.

**ANTH 448. VISUAL ANTHROPOLOGY. (3)** *Prerequisite: Junior level or higher.* This course examines photography and film as tools and products of cross-cultural research with special emphasis on cultural and political biases presented through visual means.

**ANTH 449. ETHNOGRAPHIC VIDEO PRODUCTION. (3)** *Prerequisite: ANTH 448 or permission of instructor.* Video production as a research methodology in anthropology. Practical exercises and collaborative student projects. Students will produce their own short ethnographic videos. Explores practices of representing cultures through video. This course will have a lab fee.

**ANTH 450. MODERN HUMAN BIOLOGICAL VARIATION. (3)** *Prerequisites: MATH 109 or MATH 116; and one of the following: ANTH 125, BIOL 327, BIOL 430.* Uses evolutionary theory to study biological similarities and differences among living human populations on morphological, skeletal, and molecular levels, emphasizing anthropometry, racial classification, inheritance, population genetics, adaptation, disease, and intelligence.

**ANTH 470. MUSEUM PROCEDURES AND PRESERVATION TECHNIQUES. (3)** Essential aspects of museums and of preservation, i.e. collecting, preserving, researching, exhibiting, and interpreting material culture. Equivalent to FLK 470.

**ANTH 493. ARCHAEOLOGY STEWARDSHIP. (3)** *Prerequisites: Course pass, ANTH 130, and at least six additional hours in anthropology.* Field monitoring, assessment, and documentation of the integrity of local archaeological sites threatened by cultural and natural formation processes. Students must arrange own travel to field sites. May be repeated for a maximum of 6 hours of credit.

**ANTH 495. DIRECTED STUDY. (1-4)** *Prerequisites: Junior standing and consent of department head. Course pass required.* Available to superior students who wish to conduct individual, intensive reading and research in a specific area of anthropology in close cooperation with supervising faculty. Submission of such projects to student sections of regional professional meetings is encouraged. Number of credit hours will be determined in consultation with instructor. May be repeated for a maximum of 8 hours of credit.

**ARBC - ARABIC**  
DEPARTMENT OF MODERN LANGUAGES

**ARBC 101. ARABIC I. (3)** A study of the basic grammar, syntax and vocabulary of Arabic, concentrating on developing fundamental skills in writing, reading and speaking the language. May be taken either as a foreign language course or as a RELS elective. [GEN ED A-II]

**ARBC 102. INTERMEDIATE ARABIC II. (3)** *Prerequisite: ARBC 201 or equivalent.* Continuation on the development of communication skills on everyday topics and of cultural insights. [GEN ED A-II]

**ARBC 201. INTERMEDIATE ARABIC I. (3)** *Prerequisite: ARBC 387 or two years of high school Arabic.* Expansion of communication skills in increasingly complex and varied situations. Emphasis on conversational speaking, presentational writing and speaking, and understanding culturally specific texts and media. [GEN ED A-II]

**ARBC 202. INTERMEDIATE ARABIC II. (3)** *Prerequisite: ARBC 201 or equivalent.* Continued expansion of interpersonal communication skills at the intermediate level. Emphasis on increasing comprehension, the building of vocabulary, and on presentational modes of speaking and writing. [GEN ED A-II]

**ARC - ASIAN RELIGIONS AND CULTURES**  
DEPARTMENT OF PHILOSOPHY AND RELIGION

**ARC 401. TOPICS IN ASIAN RELIGIONS AND CULTURES. (3)** A seminar focusing on a specific element of Asian religions or cultures.

**ARC 498. STUDY IN ASIAN RELIGIONS AND CULTURES. (3)** *Prerequisite: Consent of instructor.* Directed study and research in Asian religions and cultures.

**ARC 499. SENIOR SEMINAR. (3)** *Prerequisite: Senior standing and major in Asian religions and cultures or consent of instructor.* A capstone designed for senior Asian religions and cultures majors. Students will complete projects that demonstrate their research, writing, and analytical skills. Content areas of the seminar will vary by semester and instructor.

**ART / ARTS**  
DEPARTMENT OF ART (ART)  
DEPARTMENT OF LIBERAL ARTS AND SCIENCES (ARTS)

**ART HISTORY**

**ART 100 / ARTS 100C. ART APPRECIATION. (3)** Partial fulfillment of the humanities requirement for all students. Expressive, formal and technical components are explored in a manner designed to provide the student with a more complete understanding and appreciation of the visual arts. [GEN ED B-II]

**ART 105. HISTORY OF ART TO 1300. (3)** A selective chronological study of the visual arts from prehistoric through gothic times. The course is designed as an introduction to the basic terminology and problems of art history and to methods of analyzing and interpreting individual works of art. [GEN ED B-II]

**ART 106. HISTORY OF ART SINCE 1300. (3)** A selective chronological study of the major visual arts from renaissance through modern times. [GEN ED B-II]

**ART 305. ANCIENT GREEK AND ROMAN ART (3).** *Prerequisite: ART 105 or permission of the instructor.* Investigation of the artistic heritage of Ancient Greece and Rome from the Bronze Age to 476 CE.

## Course Descriptions

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**ART 312. ART OF THE UNITED STATES TO 1865. (3)** *Prerequisite: ART 106 or permission of the instructor.* A survey of art and architecture of the United States from its beginnings to the end of the Civil War.

**ART 313. ART OF THE UNITED STATES SINCE 1865. (3)** *Prerequisite: ART 106 or permission of the instructor.* A survey of art and architecture in the United States from the Civil War to the present day.

**ART 314. SOUTHERN BAROQUE ART. (3)** *Prerequisite: ART 106 or permission of instructor.* A survey of art and architecture of Italy and Spain of the seventeenth century.

**ART 315. NORTHERN BAROQUE ART. (3)** *Prerequisite: ART 106 or permission of instructor.* A survey of art and architecture of northern Europe of the seventeenth century with an emphasis on Dutch, Flemish, and French traditions.

**ART 316. MEDIEVAL ART & ARCHITECTURE. (3)** *Prerequisite: ART 105 or permission of instructor.* A study of the art and architecture of Europe from the early third century through the fourteenth century.

**ART 325. ART OF ASIA, AFRICA, AND THE AMERICAS. (3)** *Prerequisites: ART 105 and ART 106, or junior standing with permission of instructor.* Visual arts of indigenous cultures from four continents: Asia, the Americas and Africa.

**ART 390. CONTEMPORARY ART. (3)** *Prerequisite: ART 106 or permission of the instructor.* Consideration of the diverse influences, developments, and trends in the visual arts since World War II.

**ART 401. ART OF THE ITALIAN RENAISSANCE. (3)** *Prerequisites: ART 105, 106.* This course analyzes the architecture, sculpture and painting of the Italian Renaissance with emphasis on the examination of selected examples.

**ART 403. NORTHERN RENAISSANCE ART. (3)** *Prerequisite: ART 106 or permission of instructor.* A study of Netherlandish, German, and French art from late 14th through 16th centuries. Emphasis is placed upon the work of such major figures as van Eyck, van der Weyden, van der Goes, Bosch, Bruegel, Gruenewald, and Durer.

**ART 405. ART THEORY AND CRITICISM. (3)** *Prerequisites: ART 105, 106.* A study of major theories of art, both historical and contemporary, and of various approaches to making qualitative judgments about individual works of art.

**ART 407. ISLAMIC ART AND ARCHITECTURE. (3)** *Prerequisite: ART 105, or RELS 305, or RELS 320, or permission of the instructor.* A survey of art and architecture in the Islamic world from 622 through the present day.

**ART 408. EUROPEAN ART, 1700-1848. (3)** *Prerequisite: ART 106 or permission of instructor.* Examines the visual arts of eighteenth and early nineteenth century Europe including movements and styles such as Rococo, Neoclassicism, and Romanticism.

**ART 409. EUROPEAN ART, 1848-1900. (3)** *Prerequisites: ART 106 or permission of instructor.* Examines the visual arts of mid to late nineteenth century Europe including movements and styles such as Realism, Impressionism, and Post-Impressionism.

**ART 410. EUROPEAN ART, 1900-1945. (3)** *Prerequisites: ART 106 or permission of instructor.* Examines the visual arts of Europe from the beginning of the twentieth century until the end of World War Two.

**ART 445. AMERICAN ARCHITECTURAL HISTORY. (3)** An interdisciplinary survey of American architectural history, including trends and styles, architect designed and manufactured structures and elements, and the social history of American architecture. (Equivalent to FLK 445, American Architectural History)

**ART 494. SEMINAR IN ART HISTORY. (3)** *Prerequisites: ART 105, 106, and one other art history courses.* An examination of a selected period, movement, or artist which relates historical, formalistic, and theoretical approaches. Emphasis is placed upon accurate observation, critical judgment, and effective communication of ideas.

### ART EDUCATION

**ART 310. ART EDUCATION IN THE ELEMENTARY SCHOOL. (3)** *Prerequisite: Junior standing.* A requirement for elementary education majors, this course studies the materials, methods and functions of art in the elementary curriculum through the use of lectures, readings, observations and selected studio problems.

**ART 311. FOUNDATIONS OF ART EDUCATION AND METHODS I. (3)** *Prerequisites: EDU 250, ART 105, ART 106, and junior standing; or permission of instructor.* An introductory course for theoretical as well as practical foundations of elementary and/or middle school art education methods. Field experience will be required. Students are responsible for arranging their own transportation to designated or assigned sites.

**ART 411. FOUNDATIONS OF ART EDUCATION AND METHODS II. (3)** *Prerequisite: EDU 250, PSY 310, EXED 330, and ART 311 – each with grades of "C" or higher.* This second art education methods course provides diverse experiences related to art education theory and practice in elementary, middle, and high schools. Field experiences in public schools outside the regular class sessions required. Students are responsible for arranging their own transportation to designated or assigned sites.

**ART 413. FOUNDATIONS OF ART EDUCATION AND METHODS III. (3)** *Prerequisites: ART 411 with a grade of "C" or higher and senior standing; or permission of instructor.* Long-term curriculum design assessment and classroom management methods appropriate for visual arts instruction in middle and high schools. Field experience is required. Students are responsible for arranging their own transportation.

### FOUNDATION COURSES

**ART 130. TWO-DIMENSIONAL DESIGN. (3)** This course is an introduction to the elements and principles of design and their creative application in two-dimensional design problems.

**ART 131. THREE-DIMENSIONAL DESIGN. (3)** An introduction to the elements and principles of three-dimensional design through problems using natural and synthetic materials. (course fee)

**ART 230. COLOR CONCEPTS. (3)** *Prerequisites: ART 140, 130.* This course deals with concepts and applications of color in assigned two-dimensional problems.

### DRAWING COURSES

**ART 140. DRAWING. (3)** This course introduces the fundamentals of drawing with emphasis on line, perspective or rendering. Course content is derived from still life, landscape and figure.

**ART 240. DRAWING. (3)** *Prerequisite: ART 140.* This course introduces the student to specific problems in composition. (course fee)

**ART 340. DRAWING. (3)** *Prerequisite: ART 240* Composition and exploration of different media and techniques are emphasized in drawing from still life arrangements, landscapes or figure. (course fee)

**ART 341. DRAWING. (3)** *Prerequisite: ART 340.* Advanced drawing is provided in this course, with continued emphasis on composition and technique. (course fee)

**ART 440. DRAWING. (3)** *Prerequisite: ART 341.* Advanced drawing explorations through individual problem solving. (course fee)

### CERAMICS COURSES

**ART 220. CERAMICS. (3)** *Prerequisites: ART 105, 106, 131 and 140 (or concurrently with 105 or 106).* An introduction to ceramic art forming and glazing techniques. (course fee)

**ART 321. CERAMICS. (3)** *Prerequisite: ART 220.* This course emphasizes forming techniques that complement the talents and concepts of intermediate level ceramic art students. (course fee)

**ART 420. CERAMICS. (3)** *Prerequisite: ART 321.* A continuation of production in clay form and research in experimental clay and glaze composition. (course fee)

**ART 421. CERAMICS. (3)** *Prerequisite: ART 420.* This course requires advanced individual performance in creative design concepts and in research and recording. (course fee)

**ART 422. CERAMICS. (3)** *Prerequisite: ART 421.* This course is a continuation of ART 421. (course fee)

**ART 423. POTTERY WHEEL TECHNIQUES. (3)** *Prerequisite: ART 422.* Development of wheel-thrown shapes that reflect innovative thinking and mature craftsmanship. (course fee)

**ART 424. CERAMIC GLAZE COMPOSITION. (3)** *Prerequisite: ART 422.* Investigation of the thermal behavior of glaze chemicals and compounds. (course fee)

**ART 425. CERAMIC STUDIO EQUIPMENT DESIGN. (3)** *Prerequisite: ART 423.* Study of the design and construction of basic studio equipment, including kilns, burners, potters wheels, and slab rollers. (course fee)

**ART 426. SPECIAL FIRING TECHNIQUES. (3)** *Prerequisite: ART 423.* Experimentation with oxidation and reduction kiln firing techniques including raku, salt, lustre, and bizen. (course fee)

### GRAPHIC DESIGN COURSES

**ART 231. GRAPHIC DESIGN. (3)** *Prerequisites: ART 130 and 140.* This course teaches the fundamentals of applied visual communication in graphic design projects. (course fee)



**ART 243. DIGITAL MEDIA. (3)** *Prerequisites: ART 130 and ART 140.* Introduction to the use of digital media in the arts through basic investigations of current computer technologies. (course fee)

**ART 330. GRAPHIC DESIGN. (3)** *Prerequisites: ART 231, junior standing.* While the course uses elements to create forms for public viewing and also emphasizes the use of the student's experience gained in other studio areas, its primary concern is to strengthen the student's aesthetic awareness in graphic design. (course fee)

**ART 331. VISUAL THINKING. (3)** *Prerequisite: ART 231.* Focuses on the process of lateral thinking and the visualization of design problems and their solutions. Emphasizes effective research, imagination, originality, and execution in various media. (course fee)

**ART 334. SURVEY OF GRAPHIC DESIGN. (3)** *Prerequisites: ART 105, 106, 231 or approval of instructor.* This course investigates the evolution of graphic design from pre-historic visual communications through the computer graphics revolution.

**ART 343. DIGITAL MEDIA: TIME-BASED. (3)** *Prerequisite: ART 243.* Exploration of time-based and experimental digital art, including computer animation, interactive multimedia, World Wide Web and emerging applications of computer graphics in visual art. (course fee)

**ART 430. GRAPHIC DESIGN. (3)** *Prerequisite: ART 330.* A studio course to synthesize the student's previously acquired technical ability and aesthetic awareness into a finished graphic design comprehensive of professional caliber. (course fee)

**ART 431. ILLUSTRATIONS. (3)** *Prerequisite: ART 231.* This course stresses the application of various graphic media and techniques to solve problems in illustration. (course fee)

**ART 433. PACKAGE DESIGN. (3)** *Prerequisite: ART 131 and 330, or consent of instructor. For graphic design minors (reference number 385).* Techniques and aesthetics of package design. (course fee)

**ART 436. ELECTRONIC ILLUSTRATION. (3)** *Prerequisite: ART 243 or permission of instructor.* This course provides advanced instruction in popular computer illustration programs such as Adobe Illustration and Macromedia Freehand for students preparing for careers in graphic design. Limited enrollment. (course fee)

**ART 438. ADVANCED COMPUTER GRAPHICS. (3)** *Prerequisites: ART 243 and ART 330 or permission of instructor.* Combines artwork and graphic design using the computer to compose printed matter. (course fee)

#### PRINTMAKING COURSES

**ART 250. PRINTMAKING. (3)** *Prerequisites: ART 105, 106, 130, 140 (or concurrently with 105, 106).* This course introduces the student to printmaking through one of the following processes: relief, screenprinting, intaglio, lithography, collagraph or monotype. (course fee)

**ART 350. PRINTMAKING. (3)** *Prerequisite: ART 250.* Emphasizes the development of imagery through one of the following processes: relief, screenprinting, intaglio, lithography, collagraph, monotype or digital. (course fee)

**ART 351. PRINTMAKING. (3)** *Prerequisite: ART 350.* Continues the student's development of personal imagery and technical proficiency through printmaking. (course fee)

**ART 450. PRINTMAKING. (3)** *Prerequisite: ART 351.* Stresses advanced printmaking techniques and requires students to have strong personal imagery. (course fee)

**ART 451. PRINTMAKING. (3)** *Prerequisite: ART 450. Corequisite: ART 452.* Printmaking exploration through research and creative activity. (course fee)

**ART 452. PRINTMAKING. (3)** *Corequisite: ART 451.* This course consists of advanced research problems in printmaking. (course fee)

**ART 453. SENIOR TECHNIQUES IN PRINTMAKING. (3)** *Prerequisite: ART 452.* Develops mastery printmaking skills. (course fee)

**ART 454. SENIOR COMPOSITION IN PRINTMAKING. (3)** *Prerequisite: ART 452.* Exploration of mature personal imagery in printmaking. (course fee)

**ART 455. ADVANCED SENIOR TECHNIQUES IN PRINTMAKING. (3)** *Prerequisites: ART 453, 454.* Continues the development of master printmaking skills. (course fee)

**ART 456. ADVANCED SENIOR COMPOSITION IN PRINTMAKING. (3)** *Prerequisites: ART 453, 454.* Continues the exploration of mature personal imagery in printmaking. (course fee)

#### PAINTING COURSES

**ART 260. PAINTING. (3)** *Prerequisites: ART 105 or 106, 130 and 140 (or concurrently with 105 or 106).* The purpose of this course is to acquaint students with the fundamental techniques of painting. (course fee)

**ART 360. PAINTING. (3)** *Prerequisite: ART 260.* This course stresses the creative approach to painting media. Emphasis is placed upon developing and understanding of the materials, principles and techniques inherent in a work of art. Outside reading and pictorial investigations are assigned. (course fee)

**ART 361. PAINTING. (3)** *Prerequisite: ART 360.* This course requires students to apply knowledge, understanding and skills in painting with increased competence and insight. (course fee)

**ART 460. PAINTING. (3)** *Prerequisite: ART 361.* Research problems in selected painting materials are provided in this course. (course fee)

**ART 461. PAINTING. (3)** *Prerequisite: ART 460.* This course consists of advanced individual research problems in painting. (course fee)

**ART 462. PAINTING. (3)** *Prerequisite: ART 461.* This course is a continuation of 461 Painting. (course fee)

**ART 463. SENIOR PAINTING STUDIO I. (3)** *Prerequisite: ART 462. Corequisite: ART 464.* Advanced studio exploration through historical, technical and practical methods. (course fee)

**ART 464. SENIOR PAINTING STUDIO II. (3)** *Prerequisite: ART 462. Corequisite: ART 463.* Advanced studio using historical, technical and practical methods to create a cohesive body of work. (course fee)

**ART 465. ADVANCED SENIOR PAINTING STUDIO I. (3)** *Prerequisites: ART 463, 464. Corequisite: ART 466.* Development of a sustainable studio practice through individual problem solving. (course fee)

**ART 466. ADVANCED SENIOR PAINTING STUDIO II. (3)** *Prerequisites: ART 463, 464. Corequisite: ART 465.* Development of a professional studio practice through individual experimentation and innovation. (course fee)

#### SCULPTURE COURSES

**ART 270. SCULPTURE SURVEY I. (3)** *Prerequisites: ART 105, 106, 131 and 140 (or concurrently with 105 or 106).* A survey of sculpture production methods, including modeling, mold making, carving and fabricating in various materials. Students will explore traditional and contemporary techniques that can be used to express their understanding of the human condition by sculptural means. (course fee)

**ART 370. SCULPTURE SURVEY II. (3)** *Prerequisite: ART 270.* Further development of basic sculptural materials and techniques. (course fee)

**ART 371. SCULPTURE METHODS, WELDING I. (3)** *Prerequisite: ART 370.* Advanced work in sculpture composition. Welding is introduced, using oxyacetylene, electric or gas arc. (course fee)

**ART 372. SCULPTURE, FIGURATIVE STUDIES. (3)** *Prerequisite: ART 270.* Focuses on the human figure, its various applications and meanings as a vehicle for aesthetic expression in contemporary sculpture. Course may be repeated once for credit. (course fee)

**ART 470. SCULPTURE. (3)** *Prerequisite: ART 371.* Sculptural problems. Introduction to metal casting using sand molds. (course fee)

**ART 471. SCULPTURE METHODS, FOUNDRY I. (3)** *Prerequisites: ART 371, 372.* Sculptural problems. Introduction to the lost-wax method of casting. (course fee)

**ART 472. SCULPTURE. (3)** *Prerequisite: ART 471.* Experience in solving problems met in professional practice. (course fee)

**ART 474. SCULPTURE METHODS, WOOD. (3)** *Prerequisite: ART 472.* Advanced techniques in wood sculpture. (course fee)

**ART 475. SCULPTURE METHODS, WELDING II. (3)** *Prerequisite: ART 371.* Advanced welding techniques in sculpture. (course fee)

**ART 476. SCULPTURE METHODS, FOUNDRY II. (3)** *Prerequisite: ART 471.* Advanced foundry techniques in sculpture. (course fee)

#### WEAVING COURSES

**ART 280. WEAVING. (3)** *Prerequisites: ART 105, 130 and 140 (or concurrently with ART 105, 106).* This course is an introduction to weaving, including rya, flossa, and tapestry rug techniques plus techniques for yardage and wall hanging. (course fee)

**ART 380. WEAVING. (3)** *Prerequisite: ART 280.* In this course, the creative and individual approach is emphasized in weaving full-size items using techniques learned in weaving 280, in addition to other weaving techniques. (course fee)

## Course Descriptions

**ART 381. WEAVING. (3)** *Prerequisite:* ART 380. In this course, the student is expected to investigate one or more selected areas of weaving. (course fee)

**ART 480. WEAVING. (3)** *Prerequisite:* ART 381. This course consists of creative research in the areas of double-weave, ikat, the use of indigenous fibers and other more complicated techniques. (course fee)

**ART 481. WEAVING. (3)** *Prerequisite:* ART 480. This course provides for the development of special creative problems involving techniques investigated in weaving 480. (course fee)

**ART 482. WEAVING. (3)** *Prerequisite:* ART 481. This course involves advanced individual research in weaving. (course fee)

**ART 483. SENIOR FIBER TECHNIQUES. (3)** *Prerequisite:* ART 482. Develops proficiency in weaving or fiber construction through experiments with traditional and innovative techniques. (course fee)

**ART 484. SENIOR FIBER COMPOSITION. (3)** *Prerequisite:* ART 482. Explores and develops mature personal concepts and imagery in fiber art. (course fee)

**ART 485. ADVANCED SENIOR FIBER TECHNIQUES. (3)** *Prerequisites:* ART 483, 484. Continues the development of fiber techniques introduced in ART 483. (course fee)

**ART 486. ADVANCED SENIOR FIBER COMPOSITION. (3)** *Prerequisites:* ART 483, 484. Continues the development of concepts and imagery in fiber art as begun in ART 484. (course fee)

### SPECIAL TOPICS STUDIO COURSES

**ART 432. PORTFOLIO. (3)** *Prerequisites:* Junior standing and consent of instructor. This course is designed to inform and to guide the student in assembling a portfolio for professional presentation. (course fee)

**ART 434. CAPSTONE SEMINAR. (1)** *Prerequisite:* ART 432. Seminar workshop with emphasis on presentation and discussion of practices that are appropriate to future professional development. To be taken the last semester of student's program of study. Restricted to BFA and AB, studio concentration students. (Grading: Pass/Fail)

**ART 496. SPECIAL TOPICS IN STUDIO ART. (3)** *Prerequisite:* Permission of instructor. Investigates different topics in art through process or technique in a studio practice. May be repeated for a total of 6 credit hours.

### INDEPENDENT STUDY

**ART 490. SPECIAL PROBLEMS. (3-6)**

**ART 491. SPECIAL STUDIES. (3)**

**ART 399. PROFESSIONAL WORK. (3)** *Prerequisite:* Junior standing.

**ART 499. CAREER EXPERIENCE IN ART. (3)** *Prerequisite:* Application for or enrollment in Cooperative Education plan, approval of Co-op Faculty Advisor and of department head and development of written Learning Plan. Practical experience in art in a supervised work situation within a cooperating private enterprise or public agency. Adequately prepared students are placed in a situation in which theoretical knowledge may be applied to actual professional experience. Course may be repeated once for an additional 3 hours.

### ASTR – ASTRONOMY

#### DEPARTMENT OF PHYSICS AND ASTRONOMY

#### NON-SCIENCE MAJORS

**ASTR 104. ASTRONOMY OF THE SOLAR SYSTEM. (3)** An introductory study of that portion of the physical universe extending beyond the earth from the sun to the outer limits of the solar system, including its relationship to the rest of the universe and to the earth. Topics include phenomena visible from earth, the earth's motions and timekeeping, eclipses, motions of planets and satellites, and the historical development of scientific understanding of the solar system. Comparison of physical properties among the sun, planets, and satellites interrelate the earth and its life forms with the extraterrestrial environment that supported the development and continuation of life on earth. This course contains an integral laboratory that includes planetarium exercises and evening observing sessions using telescopes. [GEN ED D-I (DL)]

**ASTR 106. ASTRONOMY OF STELLAR SYSTEMS. (3)** An introductory study of that portion of the physical universe in the space beyond the bounds of the solar system. Topics include the physical properties of stars and stellar systems, stellar formation and evolution, supernovas, pulsars, galaxies, quasars, black-holes, and cosmology—scientific theories of the origin, evolution, and fate of the universe on the grandest scale. Emphasis is given to the significance of these topics to the development and fate of the earth and its star. This course contains an integrated laboratory that includes planetarium exercises and evening observing sessions using telescopes. [GEN ED D-I (DL)]

**ASTR 108. DESCRIPTIVE ASTRONOMY. (3)** Introductory survey of our universe; from observations of the sun, moon and stars in the sky to our understanding of planets, stars, galaxies and the overall characteristics of the cosmos. [GEN ED D-I]

#### SCIENCE/MATH MAJORS AND MINORS

**ASTR 214. GENERAL ASTRONOMY. (4)** *Co-requisite:* MATH 136. An introduction to astronomy for science majors. Topics include distances, masses, and luminosities of stars, stellar atmospheres and structure, stellar evolution, star systems, interstellar matter, galaxies, cosmology, the sun, and the solar system. Three hours of lecture and two hours of laboratory per week. [GEN ED D-I (DL)]

#### EDUCATION MAJORS AND MINORS

**ASTR 405. ASTRONOMY FOR TEACHERS. (3)** *Prerequisite:* ASTR 104 or ASTR 106 or ASTR 108 or ASTR 214. Selected topics in astronomy for elementary and secondary teachers. Does not count toward physics major credit.

#### DEPARTMENTAL MAJORS AND MINORS

**ASTR 298. RESEARCH EXPERIENCES. (1-3)** *Prerequisite:* MATH 117 or equivalent, and ASTR 106 or ASTR 214 or ASTR 275; and permission of instructor. Individual or group research project carried out under direct faculty supervision. An oral presentation or paper, reviewed by a faculty committee, is required. Course may be repeated for a maximum total of 3 credit hours.

**ASTR 305. INTRODUCTION TO ASTROBIOLOGY. (3)** *Prerequisites:* MATH 116, and ASTR 106 or BIOL 120 or CHEM 120 or GEOL 111. Inter-disciplinary study of life on Earth and possible life beyond Earth. Topics include the environments suitable for life, evolution of life forms, and the search for intelligent extraterrestrial life. Integrates concepts and methods from astronomy, biology, chemistry and geology.

**ASTR 314. OBSERVATIONAL ASTRONOMY. (4)** *Prerequisite:* ASTR 214. A study of the techniques of observational astronomy. Topics include imaging techniques, spherical astronomy, magnitude systems, telescope optics, data acquisition, and statistical analysis of astronomical data. Three hours of lecture and two hours of laboratory per week.

**ASTR 414. ASTROPHYSICS. (4)** *Prerequisite:* PHYS 321 and MATH 237. *Corequisite:* MATH 331. Introduction to current astrophysical topics, including radiation theory, the interstellar medium, stellar evolution, galaxies, quasars and cosmology.

#### BA – BUSINESS ADMINISTRATION

#### GORDON FORD COLLEGE OF BUSINESS

**BA 110. INTRODUCTION TO BUSINESS AND ENTREPRENEURSHIP. (3)** A multi-disciplinary introduction to business and entrepreneurship. Course will provide basic knowledge of each of the major functional global business areas. Ethical issues and consumers' rights will also be integrated into the course.

**BA 175. UNIVERSITY EXPERIENCE-BUSINESS. (3)** *Prerequisite:* For beginning college freshmen or transfer students with fewer than 24 semester hours of credit. A multi-disciplinary introduction to entrepreneurship and the general business environment. Topics include study skills, critical thinking, problem solving and exploration of majors and careers. Special attention is given to educational requirements, careers and resources available in the business arena.

**BA 220. SPECIAL TOPICS IN BUSINESS ADMINISTRATION (LOWER DIVISION). (1-3)** Special topics course covering interdisciplinary topics of current interest in business. Open to all students. May be repeated one time for up to 6 hours of credit.

**BA 420. SPECIAL TOPICS IN BUSINESS ADMINISTRATION (UPPER DIVISION). (1-3)** *Prerequisite:* Junior standing. Special topics course covering interdisciplinary topics of current interest in business administration. May be repeated one time for up to 6 hours of credit.

**BA 490. COLLEGE OF BUSINESS INTERNSHIP. (1-3)** *Prerequisites:* GPA 2.5 overall, ACCT 200, 201; CIS 241; ECON 202, 203, 206, FIN 330; MGT 200, 210; MKT 220; MATH 116. Professional or business opportunities consistent with the mission and objectives of the Ford College of Business. These opportunities will be used to complement and individualize a student's program of study and will be administered on a pass/fail basis.

#### BCOM – BROADCAST COMMUNICATION

#### SCHOOL OF JOURNALISM & BROADCASTING

**BCOM 185. INTRODUCTION TO BROADCASTING. (3)** A survey of, and introduction to, the foundation, characteristics and current operating practices of broadcasting stations in the United States.

**BCOM 201. PROCESS AND EFFECTS OF MASS COMMUNICATION. (3)** An in-depth study of the theoretical foundations for analyzing mass communication messages, channels, institutions, audiences and salient effects. Provides overview of research-based scholarly conceptions of mass media roles and functions for individuals and groups.

**BCOM 261. BASIC RADIO PRODUCTION. (3)** *Prerequisite: Either BCOM 185 or BCOM 201.* Designed to introduce students to the operation of radio studio equipment and general station operation. Practical experience producing various types of radio broadcast material. Lecture and lab.

**BCOM 264. DIGITAL VIDEO PRODUCTION AND DISTRIBUTION. (3)** Designed for non-broadcasting majors, this course includes the basics needed to shoot, edit and distribute video productions in the digital realm. Acquisition will concentrate on lighting, composition and audio for the digital world. Editing and graphics will be explored using non-linear programs, and distribution will focus on CDs, DVDs and web streaming. (course fee)

**BCOM 265. BASIC BROADCAST NEWS. (3)** *Prerequisite: BCOM 185 or 201 or JOUR 201.* An introduction to the theory and practice of broadcast news writing styles for radio and TV. Includes analyzing and editing news information with initial exposure to broadcast news announcing on the student radio station WWHR-FM. (course fee)

**BCOM 266. BASIC TELEVISION PRODUCTION. (3)** *Prerequisite: BCOM 185 or BCOM 201 or permission of instructor.* Designed to introduce students to the operation of television field and studio equipment and general station operation. Practical experience producing various types of television broadcast and non-broadcast video material. Lecture and lab. (course fee)

**BCOM 300. AMERICAN POPULAR ARTS. (3)** *Prerequisite: BCOM 201 or JOUR 201.* Provides a balanced and comprehensive coverage of the major manifestations of popular mass-mediated arts. Critical examination seeks to reveal the actual and potential values of contemporary "middle culture." Areas to be investigated in detail include movies, popular music, magazines, books, television, radio and related communication channels.

**BCOM 301. MASS COMMUNICATION LAW AND ETHICS. (3)** *Prerequisites: PS 110 and either BCOM 201 or JOUR 201.*

An overview of concepts basic to the freedom of expression. Consideration, through case study and attention to topical problems, of limits on the freedom of expression, including various means of regulation: ethics, law and other social controls. Emphasis on broadcasting applications.

**BCOM 303. ACTING FOR THE CAMERA. (3)** A fundamental approach to auditioning and acting for the camera. (See Theatre Department)

**BCOM 325. SURVEY OF WRITING FOR TELEVISION, RADIO. (3)** *Prerequisite: Either BCOM 185 or BCOM 201.* A survey of television and radio as media for the writer and the forms of writing prevalent in the two media. Survey of, and practice in, techniques for writing commercials, public service, news, sports, interviews and dramatic segments. Introduction to the production elements involved in writing for television and radio. (course fee)

**BCOM 326. TELEVISION AND RADIO PERFORMANCE. (3)** *Prerequisite: BCOM 266.* The fundamentals and principles of communicating as performer on-microphone and on-camera, including voice improvement and image projection as well as exercises in the types of performing prevalent in radio and television. Lecture and lab. (course fee)

**BCOM 328. BROADCAST WEATHER GRAPHICS. (3)** *Prerequisites: BCOM 185, 201, GEOG 121.* Creation and practical use of weather graphics to formulate a forecast, data accumulation and communication of weather events to a radio/television audience. (course fee)

**BCOM 329. BROADCAST WEATHER DATA. (3)** *Prerequisite: BCOM 185, 201, GEOG 121.* The use of broadcast satellite and broadcast radar products in weather prediction, emphasizing image interpretation. Advanced analysis of broadcast meteorological case studies related to broadcast weather forecasting problems and severe weather events. (course fee)

**BCOM 335. NEWS DISCOVERY AND SELECTION. (3)** *Prerequisite: BCOM 265.* Gathering news through active news discovery; advance planning, enterprising and prioritizing stories based on criteria of newsworthiness and consequence. Some off-campus travel. (course fee)

**BCOM 350. SCRIPTWRITING FOR FILM & TELEVISION. (3)** *Prerequisites: FILM 201 or BCOM 325 or permission of instructor.* Story structure, dialogue, characterization and other elements important in scriptwriting for television and motion pictures.

**BCOM 360. ELECTRONIC MEDIA PROGRAMMING/RESEARCH. (3)** *Prerequisite: BCOM 301 or instructor's permission.* Exposure to full range of broadcast programming options and research concerns. Marketplace and managerial aspects of format design and audience analysis are presented and discussed to reveal the essential nature and role of electronic mass media services.

**BCOM 361. ADVANCED RADIO PERFORMANCE. (3)** *Prerequisite: BCOM 261.* An advanced production course in radio broadcast programming and personality development. Integrated work on WWHR-FM radio. Projects include weekly air shifts, digital production and editing work, remote broadcasts and involvement in overall station operations. Lecture and lab. (course fee)

**BCOM 365. INTERMEDIATE BROADCAST NEWS. (3)** *Prerequisite: BCOM 335.* An intermediate approach to the principles and practice of collecting, writing, editing and announcing the news by means of radio and television. Lecture and lab. (course fee)

**BCOM 366. VIDEO EDITING, AESTHETICS AND TECHNIQUES. (3)** *Prerequisite: BCOM 266 or FILM 201 or permission of the instructor.* Editing as a practical experience and as the final tool for the visual storyteller's message. Editing systems include Avid and Final Cut Pro. Work with original material in editing situations that incorporate computer graphics and 3-D animation. Discussion and analysis of editing decisions considering ethics, philosophy, timing and aesthetics. Lecture and lab. (course fee)

**BCOM 367. FIELD PRODUCTION. (3)** *Prerequisites: BCOM 266 and BCOM 366 for majors in broadcasting, BCOM 366 for majors in film.* Study of, and practical experience in, single-camera field acquisition. Techniques of lighting, audio, talent and environment manipulation, as they apply to both film and video, are examined in the context of shooting for the edit. Employs advanced editing tools in developing skills by students through use of time code, Avid systems and DVE units. (course fee)

**BCOM 368. NEWS VIDEOGRAPHY AND EDITING. (3)** *Prerequisite: BCOM 265 and 266 for majors in Broadcasting; JOUR 261 for majors in News/Editorial Journalism and Photojournalism.* A study of, and practical experience in, field techniques of videography and editing procedures and practices as they pertain to television news and documentaries. Emphasis is on digital video and nonlinear editing for electronic news gathering (ENG) for commercial and noncommercial television news programs. (course fee)

**BCOM 369. COOPERATIVE EDUCATION IN BROADCAST COMMUNICATION. (3)** *Prerequisites: 18 hours in the major, permission of sequence coordinator.* Appropriate supervised work with a cooperating organization, defined as a licensed radio or television station, cable television or production facility.

**BCOM 376. FILM PRODUCTION FOR TELEVISION. (3)** *Prerequisite: BCOM 264 for non-majors or BCOM 367 for Broadcast majors.* Advanced work in the creative and technical aspects of filmmaking for television. Practical applications of cinematography in the professional 16 mm format. Program material will include television commercials, music videos, experimental, documentary and made-for-TV movies. Lecture and lab. (course fee)

**BCOM 378. FILM ANIMATION. (3)** Students learn the basics of producing animated motion pictures by experimenting with a variety of techniques and methods. Also included is a history of the animated film as an art form.

**BCOM 379. PRODUCING FOR VIDEO AND FILM. (3)** *Prerequisite: BCOM 366.* Structured to offer students a strong foundation in producing film and television programs. Includes developing ideas, conceptualizing, script evaluation, proposal writing, fund raising, budgeting, scheduling and business management.

**BCOM 380. POST PRODUCTION. (3)** *Prerequisite: BCOM 366.* Continued instruction in post-production techniques and technologies. Focuses include image manipulation, non-linear editing, audio post, visual effects and compositing, with a strong web component. (course fee)

**BCOM 385. BROADCAST COMMERCIAL SALES. (3)** *Prerequisite: Junior standing.* A study of the marketing principles, problems and techniques of producing revenue for broadcast radio and television through the sale of commercial time. Students are involved in role-playing as well as the preparation and oral presentation of a final marketing project.

**BCOM 401. HISTORY OF BROADCASTING IN AMERICA. (3)** Consolidates and interrelates the major historical factors in the development of broadcast mass communications in America; provides perspective on the creation, adaptation and diffusion of radio and television in relation to other mass media.



## Course Descriptions

**BCOM 429. BROADCAST METEOROLOGY. (3)** *Prerequisites: BCOM 328, BCOM 329, GEOG 424, GEOG 426.* This course teaches the student the intricacies of meteorological forecast elements while completing television studio work, specifically designed to television weather performance. Weather-related features as well as emergency weather broadcasting will be covered. (course fee)

**BCOM 461. RADIO WORKSHOP. (1)** *Prerequisites: BCOM 361 and instructor's permission.* A radio production and management course for students with a continuing desire to contribute to the on-air operation of WWHR or for students involved in WWHR staff/management positions. Course work involves practical application of radio production and management skills in the areas of entertainment and news. (May be repeated twice for additional credit. Lecture and lab.)

**BCOM 465. ADVANCED BROADCAST NEWS. (3)** *Prerequisites: BCOM 365 and BCOM 368.* The capstone course in writing, editing, announcing and producing radio and television news reports. Producing, anchoring and reporting for the student television newscast is required. Students also analyze the job market and produce a resume tape for employment. Lecture and lab. (course fee)

**BCOM 466. DIRECTING TELEVISION AND FILM. (3)** *Prerequisites: BCOM 367 and 379.* Professional level directing course for film/video production majors. Structured to offer students a thorough knowledge of and experience in directing single and multi-camera productions. Emphasis on live, video tape and film programs for broadcast and non-broadcast applications. Lecture and Lab. (course fee)

**BCOM 467. BROADCAST WORKSHOP. (1)** *Prerequisite: Instructor permission.* An intense study of a specific production or news skill generally required of broadcasting personnel. These skills will be identified and studied through discussion and application. Various production-related topics include television lighting, television graphics, electronic news gathering (ENG), commercial spot production, industrial applications, scenic design and construction, radio/TV sports announcing, and others. (May be repeated twice for credit in additional topics.)

**BCOM 480. ADVANCED POST PRODUCTION. (3)** *Prerequisites: BCOM 380.* Advanced instruction in post-production techniques and technologies. Focuses include non-linear editing, advanced visual effects and compositing, DVD authoring, encoding for mobile applications, and web video and animation. (course fee)

**BCOM 481. PROBLEMS IN MASS COMMUNICATION. (3)** *Prerequisite: Permission of the instructor.* Course offers the student the chance to pursue an independent study in a number of areas including radio, television, cinematography and broadcast news.

**BCOM 482. TELEVISION PROGRAM PRODUCTION. (3)** *Prerequisites: BCOM 367, 380, 466.* Capstone of television production sequence. Culminates in portfolio, which entire production faculty evaluates. Projects, accompanied by complete production books, may target commercial and/or non-commercial outlets for both film and video. Program produced should reflect skills acquired in all previous production courses and serve as anchor of student's sample reel. (course fee)

**BCOM 485. BROADCAST OPERATIONS AND MANAGEMENT. (3)** *Prerequisite: Second semester junior standing or senior standing.* A study of the programming, operation and management practices and problems related to broadcast radio and television stations in the United States, as well as industry codes and regulatory requirements from governmental agencies.

**BCOM 491. INTERNSHIP. (3)** *Prerequisites: 18 hours in the major, permission of sequence coordinator.* Professional-quality experience outside or inside the University for a fixed period of time and conforming to minimum standards established by the School. Follow-up will consist of student reports and evaluation.

### BE – BUSINESS AND MARKETING EDUCATION SCHOOL OF TEACHER EDUCATION

**BE 210. COMPUTER APPLICATIONS FOR BUSINESS EDUCATORS. (3)** Fundamentals of integrated desktop computer applications utilized by business and marketing educators. For future Business and Marketing educators with no computer applications experience.

**BE 310. ADVANCED COMPUTER APPLICATIONS FOR BUSINESS EDUCATORS. (3)** *Prerequisite: BE 210.* Fundamentals of advanced integrated desktop computer applications utilized by Business and Marketing educators. For future Business and Marketing educators or students who wish to expand their current skills from the intermediate level to the advanced level.

**BE 350. BUSINESS COMMUNICATION. (3)** A study of the communication process in business as related to managerial and professional communication. Emphasis on the principles of functional communication; correct, forceful language use; and sound management policies and practices, which lead to effective communication.

**BE 362. INTRODUCTION TO OFFICE SYSTEMS. (3)** This course emphasizes the interaction of people, processes, and technologies that form office information systems within contemporary organizations. The integrated office systems concept; major office systems technologies; management decisions and personnel considerations necessitated by office automation; human factors currently at the forefront of office systems planning; and emerging trends in society, organizations, and technology will be discussed.

**BE 410. DIGITAL MEDIA FOR BUSINESS EDUCATORS. (3)** *Prerequisite: BE 210.* Fundamentals of creating documents and web pages via computer media. Emphasis will be placed on computer desktop publishing. For future Business and Marketing educators.

**BE 471. OFFICE INTERNSHIP. (3)** *Prerequisite: Permission of the coordinator.* Office Internship is a business work experience program requiring employment in a business, government, or institutional office environment during the term in which the student is enrolled. This course requires periodic seminars and permission of the employer to declare the work experience as an internship experience.

**BE 485. OFFICE EMPLOYEE TRAINING. (3)** Theories of learning applied to the adult learner in training and development situations; developing, managing, staffing training, development programs, training materials creation, evaluation, facilities, media, applications for administrative, professional, support, and office systems employees.

**BE 486. BUSINESS AND MARKETING EDUCATION SEMINAR. (3)** *Prerequisites: Senior standing and permission of instructor. Corequisite: SEC 473.* A capstone course focusing on current trends, problems, and issues in the business world and their effect on business and marketing education.

### BIOL / BIO – BIOLOGY DEPARTMENT OF BIOLOGY (BIOL) DEPARTMENT OF LIBERAL ARTS AND SCIENCES (BIO)

*\*Course numbers preceded by an asterisk are not applicable toward a major or minor in biology without prior approval of the department head.*

**\*BIOL 113 / BIO 113C. GENERAL BIOLOGY. (3)** An introductory course in biology for the non-science major, which emphasizes the diversity and organization of life integrated with major principles and new discoveries. [GEN ED D-I]

**\*BIOL 114 / BIO 114C. GENERAL BIOLOGY LABORATORY. (1)** A laboratory course correlated with BIOL 113 for non-science majors emphasizing the scientific process, biological concepts and biological organization. (course fee) [GEN ED D-I (DL)]

**BIOL 120. BIOLOGICAL CONCEPTS: CELLS METABOLISM, GENETICS. (3)** *Corequisite: BIOL 121.* Introductory course in biology that emphasizes cellular organization and processes, metabolism, DNA structure and replication, and Mendelian and population genetics. [GEN ED D-I]

**BIOL 121. BIOLOGICAL CONCEPTS: CELLS, METABOLISM, AND GENETICS LAB. (1)** *Corequisite: BIOL 120.* Introductory laboratory in biology that emphasizes the experimental aspects of cellular organization and processes, metabolism, DNA structure and replication, and Mendelian and population genetics. (course fee) [GEN ED D-I (DL)]

**BIOL 122. BIOLOGICAL CONCEPTS: EVOLUTION, DIVERSITY, AND ECOLOGY. (3)** *Corequisite: BIOL 123.* Introductory course in biology that emphasizes evolutionary patterns and processes, diversity of life (bacteria, archaea, protists, plants, fungi, and animals), ecological principles, and conservation and management. [GEN ED D-I]

**BIOL 123. BIOLOGICAL CONCEPTS: EVOLUTION, DIVERSITY, AND ECOLOGY LAB. (1)** *Corequisite: BIOL 122.* Introductory laboratory in biology for science majors that emphasizes the experimental aspects of evolutionary patterns and processes, diversity of life (bacteria, archaea, protists, plants, fungi, and animals), ecological principles, and conservation and management. [GEN ED D-I (DL)] (course fee)

**\*BIOL 131 / BIO 131C. HUMAN ANATOMY AND PHYSIOLOGY. (4)** A basic anatomy and physiology course designed for students in physical education and health science careers. Emphasis is placed upon the concept of homeostasis and relationship of structure and function. (course fee) [GEN ED D-I (DL)]

**BIOL 150. INVESTIGATIVE BIOTECHNOLOGY CORE I. (5)** Student-directed learning emphasizing structure and function of molecules, cells and tissues, basic research skills, basic computing in biology, and history of biology. Lab fee required.

**BIOL 151. INVESTIGATIVE BIOTECHNOLOGY CORE II. (5)** *Prerequisite: BIOL 150.* Student-directed learning emphasizing: origin of life and evolutionary process, genomics and inheritance, bioenergetics and carbon flow, basic research skills, and bioethics. Lab fee required.

**BIOL 153. INVESTIGATIVE BIOTECHNOLOGY MODULE. (1)** *Prerequisite: Consent of instructor.* Biotechnology core modules as taught in BIOL 150 and BIOL 151. Lab fee may be required. May be repeated for a total of 10 credits.

**BIOL 175. UNIVERSITY EXPERIENCE – BIOLOGY. (2)** *Prerequisite: For beginning freshmen or transfer students with fewer than 24 semester hours of credit.* Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, degree programs, campus resources, and personal development. Special attention is given to educational requirements, careers, and resources in the field of biology.

**BIOL 199. INTRODUCTION TO RESEARCH EXPERIENCE. (1)** *Prerequisite: Restricted to majors in BIOL 714 – Investigative Biotechnology.* Introduces students to research through laboratory rotations. Each student will participate in two different rotations with two different faculty members. (Grading: Pass/Fail)

**\*BIOL 207 / BIO 207C. GENERAL MICROBIOLOGY. (3)** An introduction to microorganisms and their importance to humans (for non-biology majors). Approximately one third of the course is devoted to each of the three major areas of microbiology: organismal, environmental, and medical. (May be taken with or without the correlated laboratory course, BIOL 208, dependent upon the student's curriculum requirements). [GEN ED D-I]

**\*BIOL 208 / BIO 208C. GENERAL MICROBIOLOGY LABORATORY. (1)** *Prerequisite or corequisite: BIOL 207.* A laboratory course correlated with BIOL 207. (course fee) [GEN ED D-I (DL)]

**BIOL 222. PLANT BIOLOGY AND DIVERSITY. (3)** *Prerequisites: BIOL 120-121 and BIOL 122-123. Corequisite: BIOL 223.* Survey of cyanobacteria, algae, and plants with an emphasis on anatomy, morphology, development, physiology, and evolutionary adaptations.

**BIOL 223. PLANT BIOLOGY AND DIVERSITY LAB. (1)** *Corequisite: BIOL 222.* A laboratory course correlated with BIOL 222. (course fee)

**BIOL 224. ANIMAL BIOLOGY AND DIVERSITY. (3)** *Prerequisites: BIOL 120-121 and BIOL 122-123. Corequisite: BIOL 225.* Survey of animal phyla and major classes with emphasis upon morphological adaptations and biological systems that have evolved to maintain organismal and population homeostasis.

**BIOL 225. ANIMAL BIOLOGY AND DIVERSITY LAB. (1)** *Prerequisite: BIOL 224.* A laboratory course correlated with BIOL 224. (course fee)

**BIOL 226. MICROBIAL BIOLOGY AND DIVERSITY. (3)** *Prerequisites: BIOL 120-121 and BIOL 122-123. Corequisite: BIOL 227.* A study of morphological, cultural, and biochemical characteristics of important groups of bacteria.

**BIOL 227. MICROBIAL BIOLOGY AND DIVERSITY LAB. (1)** *Corequisite: BIOL 226.* A laboratory course correlated with BIOL 226. (course fee)

**\*BIOL 231. ADVANCED HUMAN ANATOMY AND PHYSIOLOGY. (4)** *Prerequisites: BIOL 131 with a grade of "C" or better or equivalent.* Human anatomy and physiology for health science career students emphasizing an integrated organ systems approach to body function. (course fee)

**BIOL 232. PRINCIPLES OF WILDLIFE ECOLOGY AND MANAGEMENT. (3)** *Prerequisites: BIOL 120-121, BIOL 122-123 or permission of instructor.* Examination of the principles of wildlife ecology and management, including population regulation, habitat management, wildlife diseases and conservation. Primarily for those interested in a career involving wildlife.

**BIOL 275 / BIO 275C. COLLOQUIA. (1-3)** *Prerequisite: Consent of instructor.* Issues of contemporary, historical or intellectual significance in Biology, often with ethical implications will be weighed and debated. May not be used to satisfy the general education requirement in natural sciences. May be repeated with a maximum of (3) counting for the Biology or Investigative Biotechnology major.

**BIOL 283. INTRODUCTORY BIostatISTICS. (4)** *Prerequisites: BIOL 120-121 and BIOL 122-123; MATH 118.* Introduction to statistical techniques and experimental design applied to the biological sciences. Probability and distributions, descriptive statistics, hypothesis testing and statistical inference using t-statistics, regression, ANOVA, chi-square, non-parametric tests. Use of computers and analysis of real data are emphasized.

**\*BIOL 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** To familiarize Ogden Research Scholars and other research oriented students with the fundamentals of choosing a research topic, performing a bibliographical search on a subject, classification of instruments, data taking, data reduction, professional ethics and other research oriented topics. The common points of research methodology in the different scientific areas will be accentuated. Examples will be drawn from the various disciplines. Use of computers will be emphasized. (Course does not count towards any major or minor). Equivalent to CHEM 295, CS 295, GEOL 295, MATH 295, and PHYS 295.

**\*BIOL 302. HUMAN BIOLOGY. (3)** A survey of body systems with special emphasis on human reproduction, embryological development and infectious diseases. Designed for non-science majors. [GEN ED D-I]

**BIOL 312. BIOINFORMATICS. (4)** *Prerequisites: BIOL 150 or 120-121 or 113, and BIOL 283 or MATH 183 or MATH 382 or STAT 301.* Presentation of the theoretical underpinnings and the computational methods of nucleic acid and protein sequence analyses used in genomic work. An associated laboratory component will provide project-based application of these methods.

**BIOL 315. ECOLOGY. (4.5)** *Prerequisite: BIOL 222-223 or BIOL 224-225 or BIOL 226-227.* A study of the fundamental principles of ecology. Laboratory work includes field research and computer techniques for analysis and synthesis. A field trip may be required. (course fee)

**\*BIOL 318. BIOLOGICAL SCIENCE LABORATORY FOR ELEMENTARY TEACHERS. (1)** *Prerequisites: BIOL 113 or equivalent and at least junior standing.* A laboratory course for Elementary Education majors emphasizing the scientific process, highlighting classical and current topics of biological importance, and demonstrating relatively simple and economical means to reveal fundamental biological principles to elementary school students.

**BIOL 319. INTRODUCTION TO MOLECULAR AND CELL BIOLOGY. (3)** *Prerequisites: BIOL 120-121 and BIOL 122-123; CHEM 120-121. Corequisite: BIOL 322.* Introduction to molecular and cell structure, relating molecular structure and function to cell structure and function. Special emphasis on protein and nucleic acid structure and function and their role in coordinating cellular activities.

**BIOL 321. COMPARATIVE ANATOMY. (4)** *Prerequisites: BIOL 224-225.* A comparative study of the morphology and relationships of the organ systems of some typical vertebrates. (course fee)

**BIOL 322. INTRODUCTION TO MOLECULAR AND CELL BIOLOGY LABORATORY. (1)** *Corequisite: BIOL 319.* Laboratory course presenting fundamental techniques for the isolation and characterization of biological molecules, with an emphasis on proteins and nucleic acids.

**BIOL 324. HISTOLOGY. (4)** *Prerequisites: BIOL 224-225.* A study of the microscopic structure of vertebrate tissues and organs.

**BIOL 325. INSECT BIODIVERSITY. (3)** *Prerequisites: BIOL 120-121 and BIOL 122-123 or consent of instructor.* Study of insects, the most diverse group of animals, including their unusual morphology, behavior, ecology, and evolutionary relationships. Laboratory activities include required off-campus trips to regional habitats and surveys of global insect groups. (course fee)

**BIOL 326. ORNITHOLOGY. (3)** *Prerequisites: BIOL 120-121 and BIOL 122-123.* A study of the general characteristics, economic importance, history, structure, classification, and identification of birds. Lectures and field trips.

**BIOL 327. GENETICS. (4)** *Prerequisites: BIOL 120-121 and BIOL 122-123.* A study of the fundamental principles of heredity in eukaryotic organisms. (course fee)

**BIOL 328. IMMUNOLOGY. (4)** *Prerequisites: BIOL 319 and 322 or BIOL 327.* An introductory study of the vertebrate immune system and its relationship to organismic integrity. (course fee)

**BIOL 330. ANIMAL PHYSIOLOGY. (3)** *Prerequisites: BIOL 224-225, CHEM 120-121.* Examination of the general principles by which animals function. Major organ systems of animals are explored with emphasis on the communication and interactions between them. Numerous vertebrate and invertebrate systems are used to illustrate physiological concepts.

**BIOL 331. ANIMAL PHYSIOLOGY LABORATORY. (1.5)** *Prerequisite or corequisite: BIOL 330.* A laboratory course that emphasizes experimental design and hypothesis testing, along with classic and modern techniques used in animal physiology. (course fee)

**BIOL 334. ANIMAL BEHAVIOR. (3)** *Prerequisites: BIOL 120-121 and BIOL 122-123.* Examination of the evolutionary basis of behavior in animals. Topics include genetic and physiological bases of behavior, communication, animal cognition, migration, foraging, predator avoidance, courtship and mate choice, and sociality.

## Course Descriptions

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**BIOL 335. NEUROBIOLOGY. (3)** *Prerequisite: BIOL 120-121 and BIOL 122-123; or consent of instructor.* The nervous system is described at the molecular, cellular, and systemic level. Topics include the structure of neurons, how neurons transmit signals, sensory systems, brain organization, and neural development, as well as how these principles affect behavior and health.

**\*BIOL 344. BIOLOGY OF AGING. (3)** *Prerequisite: three hours of biology or consent of instructor.* An introductory study of the mechanisms of aging processes with special emphasis on humans. Unfavorable progressive changes in molecules, cells, organs and organ systems will be discussed. Designed for non-biology majors.

**BIOL 348. PLANT TAXONOMY. (4)** *Prerequisites: BIOL 120-121 and BIOL 122-123 or consent of instructor.* Identification of local plant species and survey of major vascular plant families emphasizing morphological diversity, evolutionary relationships and economic uses. Field trips required. (course fee)

**BIOL 350. INTRODUCTION TO RECOMBINANT GENETICS. (3)** *Prerequisites: BIOL 319 and 322.* This course will introduce students to the basic mechanisms of genetic recombination, both in living cells and in vitro. Topics that will be discussed include: genomic organization, genetic recombination, genetic mapping, gene cloning and cloning vectors, and physical mapping of genes. The laboratory will cover methods for the isolation, cloning, labeling, and reintroduction into cells of recombinant vectors. (course fee)

**BIOL 369. COOPERATIVE EDUCATION IN BIOLOGY I. (3)** *Prerequisite: Sophomore or junior standing.* Practical out-of-the-classroom experience in a supervised work situation with a cooperating business, industry, or governmental agency, emphasizing application of knowledge and skills in specific areas of biology.

**BIOL 377. ANIMAL FORM AND FUNCTION. (3)** *Prerequisites: BIOL 120-121 and BIOL 122-123 or consent of instructor.* Mechanistic designs underlying organismal morphology, physiology driving designs, and behaviors that impact function. Topics include comparative anatomy, adaptation, ecomorphology, biological basis of physical principles, and organismal performance. (course fee)

**BIOL 389. COOPERATIVE EDUCATION IN BIOLOGY II. (3)** *Prerequisite: Junior standing.* Practical out-of-the-classroom experience in a supervised work situation with a cooperating business, industry, or governmental agency, emphasizing application of knowledge and skills in specific areas of biology.

**BIOL 399. RESEARCH PROBLEMS IN BIOLOGY. (1-3)** *Prerequisite: Consent of research project director.* A study involving a research project under faculty supervision. May be repeated with a maximum of (3) (ref. 525) or 6 hours (ref. 617) counted toward the major.

**BIOL 400. PLANT PHYSIOLOGY. (4)** *Prerequisites: BIOL 222-223; two semesters of chemistry.* A study of the general principles by which plants function. Three areas discussed are transport and translocation of water and solutes, metabolism with special emphasis on photosynthesis, and plant growth and development.

**BIOL 403. MOLECULAR BASIS OF CANCER. (3)** *Prerequisite: BIOL 319 and BIOL 322 or equivalent.* Biological and molecular features of oncogenesis and clinical cancer, focusing on specific molecular events underlying carcinogenesis, metastasis, and angiogenesis. Case study learning is integrated into the course to help students understand the societal implications of cancer.

**BIOL 404. TECHNIQUES AND THEORY OF ELECTRON MICROSCOPY. (4)** *Prerequisites: BIOL 120-121 and BIOL 122-123 or consent of instructor.* A course in the fundamentals of electron microscopy including basic theory, techniques for specimen preparation and photography, and operation of the electron microscope. (course fee)

**BIOL 405. AQUATIC INSECT DIVERSITY. (3)** *Prerequisites: BIOL 224 and 225 or consent of instructor.* The taxonomy and biology of the insects commonly encountered in freshwater habitats.

**BIOL 407. VIROLOGY. (3)** *Prerequisites: BIOL 150 or BIOL 319 and 322.* Study of bacterial, animal and plant viruses. Emphasis on the molecular aspects of the viral life cycle and pathogenesis.

**BIOL 411. CELL BIOLOGY. (3)** *Prerequisites: BIOL 319 and 322, or BIOL 327.* A lecture series emphasizing the morphological and chemical make-up of cells, the physical and chemical properties of the cell, and modern techniques for investigation of cellular functions.

**BIOL 412. CELL BIOLOGY LABORATORY. (1)** *Prerequisite or corequisite: BIOL 411.* A laboratory course correlated with BIOL 411. (course fee)

**BIOL 415. ECOLOGICAL METHODS. (3)** *Prerequisites: BIOL 315 or consent of instructor.* A course emphasizing the collection, manipulation and analysis of ecological data using a variety of techniques in aquatic and terrestrial habitats.

**BIOL 420. INTRODUCTION TO TOXICOLOGY. (3)** *Prerequisites: BIOL 120-121; CHEM 314 or equivalent.* Toxicology is the study of the adverse affects of inorganic and organic molecules on living organisms. The course will provide an understanding of the basic principles of toxicology for undergraduate majors and minors in the natural sciences.

**BIOL 430. EVOLUTION: THEORY AND PROCESS. (3)** *Prerequisite: BIOL 319 and 322 or BIOL 327.* Study of the genetic, behavioral and ecological mechanisms leading to evolutionary change, and the role of evolutionary theory as a unifying framework in biology.

**BIOL 440. DEVELOPMENTAL GENETICS. (3)** *Prerequisite: BIOL 319 and 322.* A descriptive investigation of the genetic and biochemical processes that regulate development of microbes, plants and animals.

**BIOL 446. BIOCHEMISTRY I. (3)** *Prerequisite: CHEM 314 or 340.* A study of biochemical compounds and their role in intermediary metabolism. Special topics include biochemical energetics and coenzyme mechanisms. Equivalent to CHEM 446.

**BIOL 447. BIOCHEMISTRY LABORATORY. (2)** *Corequisite or prerequisite: BIOL/CHEM 446.* A basic laboratory study involving selected experiments which illustrate biochemical principles including separation, identification and chemical properties of carbohydrates, lipids, proteins and enzymes. Equivalent to CHEM 447. (course fee)

**BIOL 450. RECOMBINANT GENE TECHNOLOGY. (3)** *Prerequisites: BIOL 350.* Discovery-based laboratory emphasizing application of basic techniques to solve student-defined problems. Problems in characterization and expression of genetic material are explored. (course fee)

**BIOL 456. ICHTHYOLOGY. (4)** *Prerequisites: BIOL 224-225 and permission of instructor.* A survey of the fishes of the world, their physiology, structure, behavior, and ecology. Special emphasis will be placed upon the collection and identification of freshwater species of Kentucky.

**BIOL 458. FISHERIES MANAGEMENT. (4)** *Prerequisites: BIOL 224-225.* A study of the factors affecting fish populations. Topics covered include life history traits, sampling techniques, management practices, and policies regulating the management of fish populations. Off-campus and overnight weekend field trips and a course fee are required. (Course fee required.)

**BIOL 459. MAMMALOLOGY. (3)** *Prerequisites: BIOL 224-225.* Taxonomy, life history and ecology of the mammals. Laboratory work includes field studies and collection and study of specimens in the laboratory.

**BIOL 460. PARASITOLOGY. (4)** *Prerequisites: BIOL 224-225.* A study of the morphology, physiology, life histories, control and economic significance of representative species. (course fee)

**BIOL 467. BIOCHEMISTRY II. (3)** *Prerequisite: BIOL/CHEM 446.* A study of the reactions of living systems and an introduction to the mechanisms and energetics of metabolism. Equivalent to CHEM 467.

**BIOL 469. COOPERATIVE EDUCATION IN BIOLOGY III. (3)** *Prerequisite: Senior level.* Practical out-of-the-classroom experience in a supervised work situation with a cooperating business, industry, or governmental agency, emphasizing application of knowledge and skills in specific areas of biology.

**BIOL 470. PATHOGENIC MICROBIOLOGY. (4)** *Prerequisites: BIOL 226-227.* A study of the organisms causing disease with emphasis on bacteria. The course will survey pathogenic bacteria, viruses, fungi, and protozoa.

**BIOL 472. APPLIED AND ENVIRONMENTAL MICROBIOLOGY. (4)** *Prerequisites: BIOL 207-208 or BIOL 226-227.* A study of the roles of microorganisms in food preservation, fermentation, spoilage and food intoxication. Production of microbial products of industrial interest; application of modern microbiological techniques to industrial processes; interrelationships between microorganisms and their environment.

**BIOL 475. SELECTED TOPICS IN BIOLOGY. (1-3)** *Prerequisite: Consent of instructor.* A consideration of special topics to acquaint the advanced student with significant problems and developments of current interest in biology. May be repeated with a maximum of 6 hours counted for graduation.

**BIOL 477. MARINE BIOLOGY. (3)** *Prerequisites: BIOL 224-225 or consent of instructor.* Marine organisms are examined within a framework of basic biological principles and processes that are fundamental to all forms of life in the sea, including evolution, ecology, biodiversity, biogeography, behavior, and physiology.



**BIOL 483. MULTIVARIATE METHODS IN BIOLOGY. (4)** *Prerequisites: Junior standing and a course in statistics, or permission of instructor.* Application of multivariate statistical analysis techniques to problems in the biological sciences. Principal component and factor analysis, canonical discriminant analysis, correspondence analysis, distance metrics and clustering, canonical correlation, repetitive sampling, randomization. Not a course in mathematical statistics; rather, emphasis is on experimental design, selection of appropriate methods for testing a particular hypothesis, and the analysis of real data.

**BIOL 485. FIELD BIOLOGY. (1-4)** *Prerequisites: Major or minor in the life sciences and consent of instructor.* An intensive field experience on a specific biological or ecological topic. (course fee)

**BIOL 490. PLANTS AS ALTERNATIVE THERAPEUTICS. (3)** *Prerequisites: BIOL 120-121 and BIOL 122-123, or BIOL 150 and BIOL 151, or consent of instructor.* Exploration of plants used in traditional medicine with emphasis on pharmacological implications as evidenced in modern clinical research. Examines therapeutic actions of phytochemicals on major human illnesses.

**BIOL 492. CLINICAL INTERNSHIP IN MEDICAL TECHNOLOGY. (8)** *Prerequisites: Student must have completed the course requirements in medical technology and have been accepted to an accredited medical technology school.* An internship in an accredited medical technology school with a curriculum that includes both daily instruction in basic theory and corresponding laboratory experience.

**BIOL 493. CLINICAL INTERNSHIP IN MEDICAL TECHNOLOGY. (14)** *Prerequisites: Student must have completed the course requirements in medical technology and have been accepted to an accredited medical technology school.* An internship in an accredited medical technology school with a curriculum that includes both daily instruction in basic theory and corresponding laboratory experience.

**BIOL 494. CLINICAL INTERNSHIP IN MEDICAL TECHNOLOGY. (14)** *Prerequisites: Student must have completed the course requirements in medical technology and have been accepted to an accredited medical technology school.* An internship in an accredited medical technology school with a curriculum that includes both daily instruction in basic theory and corresponding laboratory experience.

**BIOL 495. MOLECULAR GENETICS. (3)** *Prerequisite: BIOL 312 or BIOL 150 and 151.* A study of the molecular basis of genetics in prokaryotic and eukaryotic organisms.

**BIOL 496. PLANT BIOTECHNOLOGY. (4)** *Prerequisites: BIOL 319 and 322; AGRO 110 or BIOL 222; or permission of instructor.* A course designed to illustrate the current advances in plant biotechnology and their potential application in agriculture, health and environment.

**BIOL 497. AQUATIC FIELD ECOLOGY. (4)** *Prerequisites: BIOL 222-223 or BIOL 224-225 or BIOL 226-227; CHEM 120-121 and junior standing.* An integrated study of aquatic ecosystem structure and function including the physical and chemical properties of water and application of biological field methods. This course requires off-campus and overnight travel. (course fee)

#### BLNG – BIBLICAL LANGUAGES DEPARTMENT OF MODERN LANGUAGES

**BLNG 382. BIBLICAL LANGUAGES I INTRODUCTORY HEBREW. (3)** A study of the vocabulary, grammar, and syntax of Biblical Hebrew. May be taken either as a foreign language course or as a RELS elective. Equivalent to RELS 382. [GEN ED A-II]

**BLNG 383. BIBLICAL LANGUAGES II INTERMEDIATE HEBREW. (3)** *Prerequisite: RELS 382 or BLNG 382.* Further development of an understanding of the fundamentals of the Hebrew language with special attention to the reading of selected portions of the Old Testament. May be taken either as a foreign language course or as a RELS elective. Equivalent to RELS 383. [GEN ED A-II]

**BLNG 384. BIBLICAL LANGUAGES III INTRODUCTORY GREEK. (3)** A study of the vocabulary, grammar, and syntax of Koine Greek. May be taken either as a foreign language course or as a RELS elective. Equivalent to RELS 384. [GEN ED A-II]

**BLNG 385. BIBLICAL LANGUAGES IV INTERMEDIATE GREEK. (3)** *Prerequisite: BLNG 384 or equivalent* Further development of an understanding of Koine Greek with readings in the New Testament and Hellenistic literature. May be taken either as a foreign language course or as a RELS elective. Equivalent to RELS 385. [GEN ED A-II]

#### BUS– BUSINESS MANAGEMENT DEPARTMENT OF PROFESSIONAL STUDIES

**BUS 100C. INTRODUCTION TO BUSINESS. (3)** The management process, production, marketing, finance accounting, personnel and other functional activities are discussed.

**BUS 102C. INTRODUCTION TO ETHICAL ISSUES IN BUSINESS. (3)** This course will introduce students to the role of ethics of business in a complex, dynamic, global environment. This course will assist students to recognize, apply and appreciate the role of ethics in business decisions.

**BUS 110C. BASIC ACCOUNTING I. (3)** This course serves as a basic introductory accounting course for students pursuing an associate of arts degree program. It introduces the beginning concepts, principles, and procedures of accounting in a systematic fashion. (NOTE: Will not transfer as ACCT 200 or 201.)

**BUS 111C. BASIC ACCOUNTING II. (3)** This course builds on what was introduced in BUS 110C, further pursuing concepts, principles, and procedures of accounting in a systematic fashion. (NOTE: Will not transfer as ACCT 200 or 201.)

**BUS 160C. FINANCIAL MANAGEMENT. (2-3)** Designed to serve the personal finance needs of students regardless of their major field of study. Practical applications in personal and family financial planning including budgeting, buying, borrowing, banking and home ownership.

**BUS 210C. ORGANIZATION AND MANAGEMENT. (3)** An introduction to organization theory and organizational behavior. The course focuses on managing people and material resources to enhance organizational productivity and effectiveness. Attention is given to the managerial functions of planning, organizing, leading and controlling.

**BUS 212C. PRINCIPLES OF MARKETING. (3)** Presents the problems of marketing and the ways today's marketers solve them. The course focuses on concepts and principles of theory and practice through the use of practical examples and cases. Studies include market planning, research, strategies, distribution, promotion, pricing, market segmentation, and consumer-oriented marketing.

**BUS 214C. BUSINESS COMMUNICATION. (3)** A study of communication processes in business with an emphasis on correct language and grammar. Included is functional correspondence which leads to effective communication, such as letters, reports, memos.

**BUS 226C. INTRODUCTION TO LAW. (3)** Nature of law and the legal process, contract and the Uniform Commercial Code are stressed.

**BUS 230C. INTERNSHIP-BUSINESS. (1-6)** *Prerequisite: Division Chair and instructor's permission and must be a sophomore with a minimum gpa of 2.0.* Provides the advanced student with an opportunity for civic engagement, explore on-site job opportunities, and enhance marketability. The internship includes a project and activities that enhance professional growth and development. (Grading: Pass/Fail)

**BUS 244C. INTRODUCTION TO HUMAN RESOURCES INFORMATION SYSTEMS. (3)** This course will introduce students to the numerous concepts of Human Resources Information Systems, including topics such as hardware and software, database systems, business intelligence, information and decision support systems, and systems development.

**BUS 245C. MANAGING DIVERSITY IN THE WORKPLACE. (3)** This course will introduce students to the concepts of managing/supervising employees from a supervisor's perspective in a work setting for a diverse background.

**BUS 248C. SUPERVISORY MANAGEMENT. (3)** A practical approach to understanding and dealing with the problems faced by first-line supervisors.

**BUS 249C. EMPLOYEE BENEFITS PROGRAMS. (2)** Investigates and surveys employee benefits planning to include selection, cost control and viability of employee benefits programs.

**BUS 250C. BUSINESS ENTREPRENEURSHIP. (3)** A study of small business, emphasizing the development of a written business plan. Includes legal forms of organization, strategic planning, financing, marketing research, taxation, risk management, management principles, and Total Quality Management (TQM).

**BUS 252C. SELLING AND SALES MANAGEMENT. (3)** The role of selling and distribution, basic sales methods and techniques and management of the sales function.

## Course Descriptions

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**BUS 253C. BUSINESS SEMINAR. (3)** This course is designed to explore essential skills that employers want. Includes self-learning, communication and personal effectiveness, problem solving, goal setting, group effectiveness, influencing, managing personal and professional growth, and establishing standards for performance in the workplace. Career development, planning, management, and necessary employability and job search skills will be emphasized.

**BUS 257C. MANAGEMENT OF HUMAN RESOURCES. (3)** A course designed to emphasize the practical aspects of the management of human resources. Includes employment law, compensation, recruitment, selection, training and development, performance appraisal, labor-management relations, and employee rights.

**BUS 270C. LABOR RELATIONS MANAGEMENT. (3)** *Prerequisite: BUS 248C or permission of instructor.* This course is designed to address the legal and social context of the labor-management relationship; historical and contemporary developments in collective bargaining; work stoppages, impasse and dispute resolution; problems and anticipated developments in labor relations; union elections; union avoidance, as well as contract negotiations and preparation for bargaining.

### CD— COMMUNICATION DISORDERS

#### DEPARTMENT OF COMMUNICATION DISORDERS

**CD 090. LAB SPEECH IMPROVEMENT. (3)** This course is designed to provide individualized speech-language therapy for WKU students who require assistance in their speaking or comprehension of English language skills. Therapy is delivered by student clinicians under the supervision of certified speech-language pathologists. (Grading: Pass/Fail)

**CD 101. AMERICAN SIGN LANGUAGE. (3)** Principles, methods and techniques for communicating with individuals who sign. Topics include expressive and receptive sign skills, manual alphabet, numbers and sign vocabulary. Off-campus experiences are required. Students are responsible for arranging their own transportation to designated or assigned sites. [GENED A-II] (course fee)

**CD 102. AMERICAN SIGN LANGUAGE II. (3)** *Prerequisites: CD 101 and/or permission of instructor.* Continuation and expansion of principles, methods and techniques for communicating with individuals who sign. Off-campus experiences are required. Students are responsible for arranging their own transportation to designated or assigned sites. [GEN ED A-II] (course fee)

**CD 200. CROSS CULTURAL HEALTH CARE ENCOUNTERS. (1)** Provides the opportunity to understand and analyze cross-cultural issues related to communication that emerge in health care settings, particularly during a patient-provider encounter.

**CD 201. AMERICAN SIGN LANGUAGE III. (3)** *Prerequisites: CD 102 with a minimum grade of C or CLEP test or instructor permission.* Development of intermediate expressive and receptive ASL skills and cultural features of the language and community. Off-campus experiences are required. Students are responsible for arranging their own transportation to designated and assigned sites. There is a lab fee for activities within the ASL Lab. The class will be conducted without voice to enhance comprehension of the language.

**CD 210. COMMUNICATION DISORDERS IN LINGUISTICALLY DIVERSE POPULATIONS. (3)** Foundation for the identification, evaluation, and treatment of communication disorders in clients from diverse cultural and linguistic backgrounds.

**CD 220. IMPLEMENTING AND MANAGING A LANGUAGE ACCESS SERVICE. (3)** Implementation and maintenance of successful language access services in health care facilities. Addresses the legal and administrative aspects of language access programs and services.

**CD 230. MEDICAL INTERPRETING SKILLS. (3)** *Prerequisites: AH 290; score of "intermediate-high" or above on American Council on Teaching Foreign Language (ACTFL). Information regarding this test and associated fees can be found at [www.actfl.org](http://www.actfl.org).* Introduces and builds the skills necessary for a bilingual student to become a professional medical interpreter. It also examines the various roles of the professional medical interpreter.

**CD 280. SURVEY OF SPEECH PATHOLOGY AND AUDIOLOGY. (3)** *Prerequisite: Sophomore status.* Orientation course to the profession introduces prospective students of speech pathology and audiology to the general areas of prevention, identification, diagnosis, evaluation, and treatment as related to the management of communication disorders. Includes a basic introduction to the anatomy, physiology, and etiologies of the ear.

**CD 290. INTRODUCTION TO CLINICAL EXPERIENCE. (1)** *Prerequisite: Sophomore status.* Provides speech pathology/audiology students with opportunities to observe a minimum of 25 hours of treatment for communication disorders in children and adults. (Grading: Pass/Fail)

**CD 301. AMERICAN SIGN LANGUAGE IV. (3)** *Prerequisites: CD 301, with a minimum grade of C or instructor permission.* The fourth in the four semester sequence with continues training in American Sign Language (ASL) and student of the Deaf Community. Expressive, receptive, and affective skills will be the primary focus with an emphasis on receptive skills. There is a lab fee for activities within the ASL Lab. The class will be conducted without voice to enhance comprehension of the language. (course fee)

**CD 347. BASES OF SPEECH. (3)** *Prerequisites: CD 280, 290, Sophomore status.* Overview of the linguistic, psycholinguistic, and sociolinguistic variables of speech and hearing. Basic orientation to instruments for measuring acoustic parameters.

**CD 401. FINGERSPELLING. (3)** *Prerequisites: CD 102, with a minimum grade of C or instructor permission.* This course will serve to supplement a student's American Sign Language (ASL) conversational skills. Receptive and expressive fingerspelling course content will serve to further strengthen the student's use of this language. In addition, the course will also focus on aspects and applications of incorporating numerals into use of ASL in a variety of contexts. The class will be conducted without voice to enhance comprehension of the language.

**CD 402. ASL PROFESSIONAL ETHICS AND ISSUES. (3)** *Prerequisites: CD 201, with a minimum grade of C or instructor permission.* Professional and ethical issues as they relate to interpreting and transliterating. In addition, students will become familiar with applicable terminology and procedures when interacting with the Deaf Community. Topics are based on information needed for the Registry of Interpreters for the Deaf certification tests.

**CD 403. DEAF CULTURE AND HISTORY. (3)** *Prerequisites: CD 102, with a minimum grade of C or instructor permission.* An overview of the psychological, sociological and cultural impacts of deafness upon children and adults. Explores how deafness can affect the individual's development in language, communication, cognition and psychological emotional growth. Examines historic relations between Deaf and hearing and compares Deaf culture with that of the hearing world. A voice interpreter will be provided for the class.

**CD 405. APPLIED PHONETICS. (3)** *Prerequisites: CD 280, 290, Junior status.* Study of distinctive feature systems that classify consonants and vowels, the definitions of phonological process terminology, and practice in broad and narrow transcription of words and connected speech.

**CD 433. COMMUNICATION EVALUATION IN AUTISM SPECTRUM DISORDERS. (3)** *Prerequisite: CD 485 or permission of the instructor.* Communication diagnostic considerations employed when assessing language in individuals with diagnoses along the Autism Spectrum Disorder (ASD) continuum; formal and descriptive assessment is presented with case study methodology.

**CD 440. PHONOLOGY AND LANGUAGE DISORDERS. (3)** *Prerequisites: CD 405, 481.* Study of etiology and treatment of phonological and language disorders in children and adolescents.

**CD 434. COMMUNICATION INTERVENTION IN AUTISM SPECTRUM DISORDERS (3)** *Prerequisite: CD 433 or permission of the instructor.* Communication intervention considerations and evidence-based strategies are presented for individuals diagnosed within the Autism Spectrum Disorder (ASD) continuum; use of evidence-based strategies and case study methodology.

**CD 478. CLINICAL ISSUES AND TREATMENT IN SPEECH LANGUAGE PATHOLOGY. (3)** *Prerequisite: Acceptance into CD program; Junior status.* Overview of specified speech and language disorders that may be encountered in a clinical setting. Outcomes based treatment will be discussed.

**CD 481. SPEECH AND LANGUAGE DEVELOPMENT. (3)** *Prerequisites: Acceptance into CD program and junior status, or permission of instructor.* An introduction to the field of speech pathology dealing with the development of speech and language and the cause of treatment of the simpler deviations from normal speech and language. The course will deal with identification of the more common speech problems and suggestions for the remedy of these problems.

**CD 482. AUDIOLOGY. (3)** *Prerequisites: CD 280, 290; junior status or instructor's permission.* Review of basic speech science, ear anatomy, physiology and pathology. Training in auditory testing by speech, pure tone, and bone conduction. Testing techniques for pediatric populations.

**CD 483. ARTICULATION DISORDERS. (3)** *Prerequisites: CD 280, 290, 405, Junior status or instructor's permission.* Study of the etiology, evaluation, and management of phonological process proficiency in children. Includes dialectal and bilingual differences. Stresses proficiency in administering protocols and planning therapy using several approaches.

**CD 484. SPEECH ANATOMY AND PHYSIOLOGY. (3)** *Prerequisites: Acceptance into CD program and junior status. Designed to help students identify the structures and functions which comprise the speech and hearing mechanism. The relation of this mechanism to the production and development of speech and language will be addressed.*

**CD 485. DIAGNOSTIC PROCEDURES FOR COMMUNICATION DISORDERS. (3)** *Prerequisites: CD 280, 290, 347, 405, 481, 484, junior status or instructor's permission. Focus on assessment using standardized and nonstandardized screening and diagnostic instruments. Development of formal and informal evaluation techniques common to speech pathology/audiology. Overview of data gathering and interpretation regarding communication functions in persons of all ages. Includes multicultural assessment tools and methods.*

**CD 486. LANGUAGE DISORDERS. (3)** *Prerequisites: CD 280, 290, 347, 405, 481, Junior status or instructor's permission. Identification, diagnosis, and treatment approaches used with language delayed children. Covers current state and federal legislation as related to service delivery models. Evaluation strategies include language sampling and report writing. Treatment approaches based on medical and educational models with emphasis on functional language therapy.*

**CD 487. AURAL REHABILITATION. (3)** *Prerequisites: CD 280, 290, 347, 482; Junior status or instructor's permission. Includes terminology, diagnostic procedures (with emphasis on early identification) and habilitation/rehabilitation programs such as manual and total communication for pediatric through geriatric populations.*

**CD 488. AUGMENTATIVE COMMUNICATION SYSTEMS. (3)** *Prerequisites: CD 280, 290, 347, 405, 481, 483, 485, 486, Senior status or permission by instructor. Focus on terminology and issues in alternative/augmentative communication. Teaches about various nonelectrical and electrical communication aids and techniques with special emphasis on rationale for device selection based on client needs. Dismissal summaries. Student must maintain availability for clinic assignments of Tuesdays and Thursdays. Student must maintain availability Tuesdays, Wednesdays, and Thursdays. Supervised clinical experience, including experience with individual and group therapy.*

**CD 489. GERIATRIC COMMUNICATION DISORDERS. (3)** *Prerequisites: Senior or graduate status. If graduate level, officially approved for program admission. Teaches about symptoms, causes, and treatment of speech, language, and hearing disorders in the geriatric population.*

**CD 490. NON-SYMBOLIC COMMUNICATION SERVICE DELIVERY. (3)** *Prerequisites: CD 481, CD 486; Senior Status or instructor's permission. Overview of preverbal communication development, nonverbal expression, and disorders associated with complex syndromes. Focus is on language intervention strategies used with individuals who have complex syndromes and/or medical conditions.*

**CD 491. MANAGEMENT OF COMMUNICATION DISORDERS IN THE SCHOOL. (3)** *Prerequisites: CD 280, 290; Senior status. Focus on assessment techniques; therapy approaches; case selection; scheduling; program planning; program evaluation; and federal, state and local legislation for school support services. Also addresses service delivery to culturally diverse populations.*

**CD 495. CLINICAL INTERNSHIP. (2-3)** *Prerequisites: CD 280, 290, 347, 405, 481, 483, 486, Senior status, course pass from instructor. Supervised clinical experience with individuals and groups of persons with communication disorders. Weekly clinic meetings include procedures for completing diagnostic reports, scheduling clients, developing individualized treatment plans, lesson plans, and dismissal summaries. Student must maintain availability for clinic assignments of Tuesdays and Thursdays. Student must maintain availability Monday, Tuesday, Wednesday, and Thursday. Supervised clinical experience, including experience with individual and group therapy. (Grading: Pass/Fail) (course fee)*

**CD 496. INTERNATIONAL SPEECH PATHOLOGY. (3)** *Prerequisite: Enrolled as a Communication Disorders major at WKU. A student abroad course that provides students with an opportunity to acquire knowledge and understanding of speech pathology services in other countries. Emphasis on the identification of different methodologies employed by clinicians in other countries for treating communication disorders in adults and children.*

**CE – CIVIL ENGINEERING  
DEPARTMENT OF ENGINEERING**

**CE 160. PRINCIPLES OF SURVEYING. (3)** *Prerequisites: High School Algebra & Trigonometry. Corequisite: CE 161. A study of the basic principles of surveying. Topics include: field note-taking, taping distances, differential leveling, profile leveling, angular measurements, bearings and azimuths, EDM, traversing, topographic mapping, and construction stakeout. The use and care of surveying equipment includes: automatic levels, pocket transits, total stations, and data collectors.*

**CE 161. PRINCIPLES OF SURVEYING LAB. (1)** *Corequisite: CE 160. Field and office procedures in support of material studied in CE 160.*

**CE 175. UNIVERSITY EXPERIENCE- CIVIL ENGINEERING. (2)** *Prerequisite: For beginning college freshmen or transfer students with fewer than 24 semester hours of credit. Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, degree programs, campus resources and personal development, with special attention given to Civil Engineering careers and design. The design process is introduced through hands-on projects.*

**CE 176. CIVIL ENGINEERING FRESHMAN DESIGN. (1)** *Prerequisite: For transfer or change of major students who have earned at least 24 semester hours of credit or have completed a course equivalent in content to the generic WKU University Experience course, or permission of instructor. Corequisite: MATH 117 or higher. An introduction to civil engineering and its specialties. Topics include a brief overview of: surveying, water resources, transportation, and construction, geotechnical, and structural engineering. The design process and the importance of public safety are emphasized. Students will complete a simple design project.*

**CE 300. FLOODPLAIN MANAGEMENT. (3)** *Prerequisites: Junior standing or approval of the instructor. Introduction to federal and local regulations governing floodplain management, the National Flood Insurance Program, and flood maps. Successful completion of the class requires passing the Certified Floodplain Manger Exam (CFM) within a maximum of two attempts. Students will be required to pay the exam fee (\$) to the Association of State Floodplain Managers.*

**CE 303. CONSTRUCTION MANAGEMENT. (3)** *Corequisite: CE 304. The study of planning, administration, and management of construction projects and an introduction to the methodology utilized in executing specific designs. Emphasis is placed on the organization of construction firms, development of construction documents, theory of estimating and quantity take-offs, contractual and management systems, scheduling, project administration and inspection of construction operations.*

**CE 304. CONSTRUCTION MANAGEMENT LAB. (1)** *Corequisite: CE 303. Extension of CE 303 lecture course. Skills related to Construction Management will be covered in a laboratory setting including plan reading, specification reading, construction scheduling and estimating using industry standard state-of-the-practice software and hardware, and other applied tasks.*

**CE 310. STRENGTH OF MATERIALS LABORATORY. (1)** *Prerequisite: MATH 137, and EM 221, or EM 222. Corequisite: EM 302 or EM 303. Implementation of fundamental principles and physical laws governing the response of structural components to external forces. Students will plan, conduct and report on experiments to measure the performance characteristics of materials and structural systems.*

**CE 316. EQUIPMENT & METHODS. (3)** *Prerequisite: CE 303. Study of construction operations as a dynamic process. Primary topics include earthmoving optimizing equipment for best production, foundation construction, concrete, masonry and steel construction methods, concrete formwork design, construction safety and construction productivity. Field trips will be incorporated.*

**CE 326. ENGINEERING LAW. (3)** *Introduction to law and judicial procedures as they relate to the practicing engineer. Contracts, professional liability, professional ethics, licensing, bidding procedures, intellectual property, products liability. Emphasis on development of critical thinking process, abstract problem analysis and evaluation.*

**CE 331. UK-TRANSPORTATION ENGINEERING. (3)** *Prerequisites: CE 160 and 161. An introduction to transportation engineering. Development of transportation systems in the United States. Route geometrics and design. Traffic flow characteristics and control. Planning, financing and economic analysis of transport facilities.*

**CE 332. TRANSPORTATION ENGINEERING. (3)** *Prerequisite: CE 160 and 161. An introduction to transportation engineering. Development of transportation systems in the United States. Route geometrics and design. Traffic flow characteristics and control. Planning, financing, and economic analysis of transport facilities.*

**CE 341. UK-FLUID THERMAL SCIENCE. (4)** *Prerequisite: MATH 137, and EM 221 or EM 222, and major status in civil engineering. Conservation of fluid mass and momentum, forces in fluids, pipe flow, fluid measurements, pump systems, hydrodynamic drag, open channel flow, and introduction to thermodynamics. Students may not earn credit for both CE 341 and CE 342.*

**CE 342. FLUID THERMAL SCIENCE. (4)** *Prerequisite: MATH 137, and EM 221 or EM 222 and major status in civil engineering. Conservation of fluid mass and momentum, forces in fluids, pipe flow, fluid measurements, pump systems, hydrodynamic drag, open channel flow, and introduction to thermodynamics. Students may not earn credit for both CE 341 and CE 342.*



## Course Descriptions

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**CE 351. UK-INTRODUCTION TO ENVIRONMENTAL ENGINEERING. (3)**  
*Prerequisites: MATH 331 and CHEM 120.* Introduction to the fundamental principles of environmental engineering. Topics in water quality, water and wastewater treatment, air quality, and solid waste and landfills are discussed.

**CE 352. INTRODUCTION TO ENVIRONMENTAL ENGINEERING. (3)**  
*Prerequisites: MATH 331 and CHEM 120.* Introduction to the fundamental principles of environmental engineering. Topics in water quality, water, and wastewater treatments, air quality, and solid waste and landfills are discussed.

**CE 360. ESTIMATING SCHEDULING BIDDING. (3)** *Prerequisite: CE 303. Corequisite: CE 361.* Investigates the principles of cost estimating, scheduling, and preparing bid documents for construction projects. Topics include feasibility studies, preliminary and detailed estimating, sequencing of tasks, tracking time and cost and variance analysis. State-of-the-practice computer applications for estimating and scheduling will be stressed in the lecture as well as the co-requisite laboratory.

**CE 361. ESTIMATING LAB. (1)** *Prerequisite: CE 303. Corequisite: CE 360.* Extension of CE 360 lecture course. Traditional and computer tools will be applied to construction estimating and scheduling. Techniques for quantity take offs and computer scheduling will be covered.

**CE 366. MECHANICAL & ELECTRICAL SYSTEMS. (3)** *Prerequisite: CE 303.* The fundamental design and installation of M/E systems in buildings. Topics covered include HVAC systems, plumbing and fire protection, electrical principles, equipment and wiring, illumination, environmental control, and plan reading as it relates to the above topics.

**CE 370. MATERIALS OF CONSTRUCTION. (2)** *Corequisite: CE 371. Prerequisite: EM 302 or 303.* An introduction to construction materials focusing on aggregate, concrete, masonry, asphalt, timber and construction materials inspections. Topics will include material properties, applications, production and physical characteristics. Students will have the opportunity to become Level I certified through the American Concrete Institute.

**CE 371. CONSTRUCTION MATERIALS LABORATORY. (1)** *Corequisite: CE 370.* The laboratory component of CE 370 Construction Materials. Projects include aggregate sieve analysis and specific gravity, asphalt sample preparation and strength testing using Superpave, and concrete strength, slump and air content.

**CE 373. UK-STRUCTURAL ANALYSIS. (3)** *Prerequisite: EM 302 or EM 303. Prerequisite or Corequisite: MATH 237.* Modeling of real structural systems; loads and building codes; analysis of statically determinate and indeterminate planar structures including displacements, internal forces and influence lines; exact and approximate techniques. Students may not earn credit for both CE 373 and CE 382.

**CE 378. ROUTE SURVEYING. (3)** *Prerequisites: CE 160, 161 and AMS 163. Corequisite: CE 379.* Horizontal alignment of simple curves, compound curves, and spirals; vertical alignment using equal and unequal tangent parabolic curves in conjunction with road gradient; superelevations; slope stakes; earthwork calculations including volumes and mass diagrams.

**CE 379. ROUTE SURVEYING LAB. (1)** *Prerequisites: CE 160 and CE 161. Corequisite: CE 378.* Field and office procedures in support of content in CE 378.

**CE 380. BOUNDARY SURVEYING. (3)** *Prerequisites: CE 160, 161, and AMS 163. Corequisite: CE 381.* A study of the principles of land surveying. Topics include: boundary descriptions, deeds, horizontal and vertical control, traverse computations, US Public Land Surveys, metes and bounds, property law, partitioning of land, restoring lost corners, right of ways, easements, and minimum standards for boundary surveys.

**CE 381. BOUNDARY SURVEYING LAB. (1)** *Prerequisites: CE 160 and 161. Corequisite: CE 380.* Field and Office procedures in support of material covered in CE 380.

**CE 382. STRUCTURAL ANALYSIS. (3)** *Prerequisite: EM 302 or 303. Prerequisite or Corequisite: MATH 237.* Modeling of real structural systems; loads and building codes; analysis of statically determinate and indeterminate planar structures including displacements, internal forces and influence lines; exact and approximate techniques.

**CE 383. STRUCTURAL STEEL DESIGN. (3)** *Prerequisite: CE 373 or 382.* Principles of the design of steel structures using the LRFD method. Design topics include axial tension and compression members, flexural members, beam-columns, connections, framing systems and design codes. Additional topics include influence of non-technical factors such as availability, economy and constructability.

**CE 384. REINFORCED CONCRETE DESIGN. (3)** *Prerequisite: CE 373 or 382.* Design of reinforced concrete structures using the ACI Building Code. Design includes compression members, flexural members, foundations and one-way slabs.

**CE 400. CIVIL ENGINEERING SENIOR DESIGN SEMINAR. (1)** *Prerequisite: PSY 265 and senior standing, or consent of instructor.* Professional, ethical and decision-making issues related to the civil engineering process. Structured small group discussions, oral presentations, and written assignments. Students will complete proposals for CE 498 during this course. Must be taken semester prior to CE 498.

**CE 410. SOIL MECHANICS. (3)** *Prerequisite: GEOL 111, 113, and EM 302 or 303. Corequisite: CE 411.* A study of soils and their properties. Stress-strain analysis, horizontal and vertical stress distribution, consolidation and settlement, soil classification, compaction, static lateral earth pressure, permeability and flow nets, bearing capacity and slope stability, and foundation construction.

**CE 411. SOIL MECHANICS LAB. (1)** *Corequisite: CE 410.* The laboratory component of CE 410 – Soil Mechanics. Projects include collection of soil samples in the field, observation of soil drilling and field testing equipment, classification of soils, plasticity testing, liquid limit, plastic limit, standard and modified proctor compaction test, nuclear density testing, and soil strength testing.

**CE 412. FOUNDATION ENGINEERING. (3)** *Prerequisite: CE 410.* A continuation of CE 410/411 Soil Mechanics, emphasizing design and construction of foundations.

**CE 426. ADVANCED CONSTRUCTION MATERIALS. (3)** *Prerequisite: CE 370.* Continuation of CE 370. Topics focus on highway construction and include soil stabilization, bituminous materials and mixtures, general highway materials and construction of rigid and flexible pavements.

**CE 436. DESIGN/CONSTRUCTION INTEGRATION. (3)** *Prerequisite: Senior standing.* The integration of the design and construction process. Using constructability concepts during the design process. Topics include value engineering, operation and maintenance, design from a construction standpoint, environmental concerns, cost analysis, alternative methods, and aesthetics.

**CE 440. MASONRY DESIGN AND CONSTRUCTION. (3)** *Prerequisites: EM 302 or 303, and CE 370 and 371. Corequisite: CE 441.* Principles in the design and construction of masonry structures in accordance with the American Concrete Institute. Current and historical properties of brick, natural block, natural stone, mortar, grout and reinforcement. Design and constructability of masonry columns, shearwalls, and unreinforced and reinforced masonry structures..

**CE 441. MASONRY CONSTRUCTION LAB. (1)** *Corequisite: CE 440.* The laboratory component of CE 440 Masonry Design and Construction. Projects include mortar testing, grout, testing, strength testing of masonry block and clay brick, block wall testing, developing plan and specifications for the construction of masonry structures, and inspection techniques of masonry systems.

**CE 444. BRIDGE ENGINEERING. (3)** *Prerequisites: CE 384 or CE 482 or CE 483.* A practice based introduction to bridge engineering, exploring the design, behavior, maintenance and rehabilitation of bridges. Bridge loads, reinforced and prestressed concrete slab and T-beam bridges, steel beam bridges, composite beam bridges, bridge evaluations and ratings, and upgrade methodologies are covered based on AASHTO code requirements using the LRFD design methodology. Abutments, piers, joints, bearings, and connections are also included. Nontechnical topics such as public perception of the nation's infrastructure with respect to bridges will be discussed.

**CE 451. WATER AND WASTEWATER TREATMENT. (3)** *Pre-requisite: CE 351.* Fundamentals of the design and operation of water and wastewater treatment facilities.

**CE 461. HYDROLOGY. (3)** *Prerequisites: MATH 331, STAT 301, CE 160, and CE 341 or 342.* A study of the laws governing the occurrence, distribution and movement of water and contaminant substances in watershed systems. Meteorological considerations, precipitation, evaporation, transpiration, infiltration, streamflow, hydrograph analysis, flood routing groundwater flow, and frequency analysis. Principles and mathematical models describing the propagation of contaminants in rivers, lakes, soils and groundwater.

**CE 462. HYDRAULIC ENGINEERING SYSTEMS. (3)** *Prerequisites: MATH 331 and CE 461.* Methods of analysis for hydrostatics, pipe flow, open channel flow including uniform and gradually varied flow, culvert and channel hydraulic design, dimensional analysis and channel modeling for flood mapping.

**CE 466. CONTRACTS & SPECIFICATIONS. (3)** *Prerequisite: Senior standing.* Basic principles of construction contracts and specifications. Topics will include owner, designer, and builder contractual relationships, subcontractors, basic formats for specifications, claims and disputes, bonds, and insurance.

**CE 474. CIVIL ENGINEERING DESIGN PROJECT. (1-3) Prerequisite:** *Permission of instructor.* An independent study course in which students complete an engineering design project of their choice under the guidance of a faculty advisor. May be repeated for a maximum of 3 hours.

**CE 475. SELECTED TOPICS IN CIVIL ENGINEERING. (3) Prerequisite:** *Permission of instructor.* Advanced special topics delivered by WKU faculty to acquaint undergraduate students with significant problems and developments of current interest in civil engineering. Course is repeatable (with different topics) two times. Permission of instructor only.

**CE 476. HIGHWAY CONSTRUCTION. (3) Prerequisite:** *CE 370.* An in-depth study of certain phases of highway engineering and construction including geometric design, planning, traffic flow, highway capacity analysis, and economic analysis.

**CE 482. WKU-ELEMENTARY STRUCTURAL DESIGN. (3) Prerequisite:** *CE 373 or 382.* Applications of principles of solid mechanics to the design of steel, timber and reinforced concrete members and structures. Emphasis is on basic ideas and their application to practical design of relatively simple structures according to the building code.

**CE 483. UK-ELEMENTARY STRUCTURAL DESIGN. (3) Prerequisite:** *CE 373 or CE 382.* Applications of principles of solid mechanics to the design of steel, timber, and reinforced concrete members and structures. Emphasis is on basic ideas and their application to practical design of relatively simple structures according to building codes. Students may not earn credit for both CE 482 and CE 483.

**CE 486. STEEL & CONCRETE CONSTRUCTION. (3) Prerequisite:** *CE 316.* Planning and field engineering for concrete and steel construction. Design and applications of concrete formwork to construction. Erection of structural steel. Safety and Building Codes.

**CE 490. UK-CE SELECTED TOPICS (FALL). (3) Prerequisite:** *Permission of instructor.* Advanced special topics delivered in the fall semester by UK faculty to acquaint undergraduate students with significant problems and developments of current interest in civil engineering. Course is repeatable (with different topics) two times. Permission of instructor only.

**CE 491. UK-CE SELECTED TOPICS (SPRING). (3) Prerequisite:** *Permission of the instructor.* Advanced special topics delivered in the spring semester by UK faculty to acquaint undergraduate students with significant problems and developments of current interest in civil engineering. Course is repeatable (with different topics) two times. Permission of instructor only.

**CE 498. SENIOR PROJECT. (3) Prerequisite:** *CE 400.* Students work on a multi-disciplinary civil engineering team to develop, design, test and build (if applicable) a civil engineering project. Students choose their own project, normally encompassing multiple areas of civil engineering practice. Teamwork and management are stressed.

**CHEM / CHM- CHEMISTRY**  
**DEPARTMENT OF CHEMISTRY (CHEM)**  
**DEPARTMENT OF LIBERAL ARTS AND SCIENCES (CHM)**

**CHEM 101 / CHM 101C. INTRODUCTION TO CHEMISTRY. (3)** A one semester terminal course covering applied chemistry and environmental considerations which can be used for general education requirements in the science field for non-science majors and minors. In-class laboratory constitutes 20 percent of class. It does not count toward a major or minor in chemistry nor does it satisfy the requirements for certain home economics and agriculture majors. [GEN ED D-I (DL)] (course fee)

**CHEM 102. INTRODUCTION TO CHEMISTRY LABORATORY. (1)** An optional laboratory to accompany CHEM 101. It satisfies the natural science laboratory requirements of the teacher certification program. Pre-lab lecture and laboratory meet two hours per week. [GEN ED D-I (DL)] (course fee)

**CHEM 105. FUNDAMENTALS OF GENERAL CHEMISTRY. (3) Prerequisite:** *Two years of high school algebra or DMA 096C.* *Corequisite:* *CHEM 106.* The first half of a one-year course predominantly for majors in agriculture and consumer and family sciences, and for non-science majors desiring a full year sequence in chemistry. It does not count toward a major or a minor in chemistry. [GEN ED D-I]

**CHEM 106. FUNDAMENTALS OF GENERAL CHEMISTRY LABORATORY. (1) Corequisite:** *CHEM 105.* Laboratory to accompany CHEM 105. Pre-lab lecture and laboratory meet two and one-half hours per week. (course fee) [GEN ED D-I (DL)]

**CHEM 107. FUNDAMENTALS OF ORGANIC CHEMISTRY. (3) Prerequisites:** *CHEM 105 and 106.* *Corequisite:* *CHEM 108.* A continuation of CHEM 105 with a major portion of the course devoted to organic chemistry which ends the one-year course for non-science majors. It does not count toward a major or minor in chemistry.

**CHEM 108. FUNDAMENTALS OF ORGANIC CHEMISTRY LABORATORY. (1) Prerequisites:** *CHEM 105 and 106.* *Corequisite:* *CHEM 107.* The laboratory to accompany CHEM 107. A major portion of the course deals with experiments in organic and biochemistry. Pre-lab lecture and laboratory meet two and one-half hours per week. (course fee)

**CHEM 109 / CHM 109C. CHEMISTRY FOR THE HEALTH SCIENCES. (4)** A course designed to emphasize the practical aspects on inorganic, organic and biochemistry as related to human health. The course is offered specifically for students in the allied health programs, but is also recommended for students in physical education, recreation, health and safety and other disciplines dealing with human health. It does not count toward a major or minor in chemistry, but does satisfy general education requirement. No laboratory accompanies this course, but CHEM 102 is recommended for students desiring laboratory experience. [GEN ED D-I]

**CHEM 111. INTRODUCTION TO FORENSIC CHEMISTRY. (3)** A combination of lecture and in-class laboratory activities designed to introduce the fundamentals of forensic chemistry including evidence collection and preservation, arson investigation, poisons and toxicity, determination of time of death, the chemistry of explosions, and DNA/blood analysis. In-class laboratory constitutes 20% of the class. [GEN ED D-I (DL)]

**CHEM 116. INTRODUCTION TO COLLEGE CHEMISTRY. (3) Prerequisite:** *MATH 116 or higher.* A one-semester course for students desiring a general survey of chemistry with a mathematical emphasis. An introductory course for College Chemistry students whose ACT score in science and/or mathematics, or whose Chemistry Placement Exam scores would indicate marginal success in CHEM 120. Does not count toward a major/minor in chemistry nor does it satisfy the requirements for certain consumer and family science or agriculture majors. CHEM 106 laboratory is optional. A student cannot use both CHEM 101 and 116 for general education credit. [GEN ED D-I]

**CHEM 120. COLLEGE CHEMISTRY I. (4) Prerequisite:** *Satisfactory score on Chemistry Placement Exam or CHEM 116 with a grade of "C" or higher.* *Corequisites:* *CHEM 121, MATH 117 or higher.* The beginning course in chemistry for science majors and minors. It also can be used for general education requirement. Covering the first half of the standard first year chemistry course, it is recommended that high school chemistry and a strong high school mathematics background precede this course. [GEN ED D-I]

**CHEM 121. COLLEGE CHEMISTRY I LABORATORY. (1) Corequisite:** *CHEM 120.* Laboratory to accompany CHEM 120. One third of each meeting is spent reviewing material from the lecture and the remaining time is used to carry out laboratory investigations. Pre-lab lecture and laboratory meet once each week for three hours per week. [GEN ED D-I (DL)] (course fee)

**CHEM 222. COLLEGE CHEMISTRY II. (3) Prerequisites:** *CHEM 120-121 with a grade of "C" or better and MATH 118.* *Corequisite:* *CHEM 223.* A continuation of the first year course in chemistry for science majors and minors. It is also satisfactory for general education requirements for non-science majors and minors.

**CHEM 223. COLLEGE CHEMISTRY II LABORATORY. (2) Prerequisites:** *CHEM 120-121 with a grade of "C" or better and MATH 118.* *Corequisite:* *CHEM 222.* Laboratory to accompany CHEM 222. A major portion of the course is devoted to semimicro qualitative inorganic analysis. Pre-lab lecture and laboratory meet for four hours per week. (course fee)

**CHEM 280. INTRODUCTION TO ENVIRONMENTAL SCIENCE. (3)** An introductory course to the study of environmental issues. A general understanding of application of science to solution of contemporary environmental problems. (Equivalent to CH 280, BIOL 280, ENV 280, and GEOG 280) [GEN ED D-I]

**CHEM 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** To familiarize Ogden Research Scholars and other research oriented students with the fundamentals of choosing a research topic, performing a bibliographical search on a subject, classification or instruments, data taking, data reduction, professional ethics and other research oriented topics. The common points of research methodology in the different scientific areas will be accentuated. Examples will be drawn from the various disciplines. Use of computers will be emphasized. (Course does not count towards any major or minor.) Equivalent to BIOL 295, CHEM 295, CS 295, GEOL 295, MATH 295, and PHYS 295.

**CHEM 299. INTRODUCTION TO CHEMICAL RESEARCH. (1-3) Prerequisites:** *CHEM 222-223 with a grade of "C" or better or consent of instructor.* A course designed to introduce the student to independent chemical research. Each credit hour requires 2 1/2 laboratory work per week with written and oral reports of laboratory work suggested.

## Course Descriptions

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**CHEM 304. BIOCHEMISTRY FOR THE HEALTH SCIENCES. (4)** *Prerequisite: CHEM 109 or consent of the instructor.* A brief treatment of organic chemistry is used as an introduction to carbohydrates, lipids, proteins and nucleic acids emphasizing their functional roles in the biological system. Specific topics will include bioenergetics, enzymes, acid-base balance, hematology and immunology. The course is offered specifically for students in the four-year nursing program, but is also recommended for students in physical education, recreation, health and safety and other disciplines dealing with human health. This course does not count toward a major or minor in biology or chemistry.

**CHEM 314. INTRODUCTORY ORGANIC CHEMISTRY. (5)** *Prerequisites: CHEM 222-223 or permission of instructor.* A brief survey course primarily for various pre-professional and science area curricula requiring one semester of organic chemistry. (course fee)

**CHEM 320. PRINCIPLES OF INORGANIC CHEMISTRY. (3)** *Prerequisites: CHEM 222-223.* A treatment of the usual topics in theoretical inorganic chemistry presented at a level not requiring calculus. It is not acceptable for ACS-program students, who should take CHEM 420.

**CHEM 330. QUANTITATIVE ANALYSIS. (5)** *Prerequisites: CHEM 222-223 with a grade of "C" or better.* A study of the common techniques and theory of gravimetric, volumetric, electrochemical, and optical methods of analysis. (course fee)

**CHEM 340. ORGANIC CHEMISTRY I. (3)** *Prerequisites: CHEM 222-223 with a grade of "C" or better. Corequisite: CHEM 341.* The first half of the standard one-year course for chemistry majors. Discussion includes various organic mechanisms and preparations. The entire sequence of CHEM 340-341, 342-343 should be completed. If only one semester of organic chemistry is desired, CHEM 314 should be taken.

**CHEM 341. ORGANIC CHEMISTRY LABORATORY I. (2)** *Prerequisites: CHEM 222-223 with a grade of "C" or better. Corequisite: CHEM 340.* Laboratory work includes studies of typical organic reactions and preparations. (course fee)

**CHEM 342. ORGANIC CHEMISTRY II. (3)** *Prerequisite: CHEM 340-341 with a grade of "C" or better. Corequisite: CHEM 343.* A continuation of CHEM 340.

**CHEM 343. ORGANIC CHEMISTRY II LABORATORY. (2)** *Prerequisites: CHEM 340-341 with a grade of "C" or better. Corequisite: CHEM 342.* Includes studies of typical organic reactions and an introduction to qualitative organic analysis. (course fee)

**CHEM 369. COOPERATIVE EDUCATION IN CHEMISTRY I. (3-6)** *Prerequisite: Sophomore or junior standing.* Practical out-of-the classroom experience in a supervised work situation with a cooperating business, industry, or governmental agency, emphasizing laboratory skills in chemistry.

**CHEM 389. COOPERATIVE EDUCATION IN CHEMISTRY II. (3-6)** *Prerequisite: Junior standing.* Practical out-of-the classroom experience in a supervised work situation with a cooperating business, industry, or governmental agency, emphasizing laboratory skills in chemistry.

**CHEM 398. UNDERGRADUATE SEMINAR. (1)** *Prerequisite: Junior standing.* A formal introduction to the chemical literature culminating in a student presentation on a selected topic. A treatment pertaining to career opportunities for chemists, resume writing, interview techniques and outside speakers from industry and academics will be included.

**CHEM 399. RESEARCH PROBLEMS IN CHEMISTRY. (1-3)** *Prerequisites: CHEM 452-453 or consent of instructor.* Special research assignments in accord with the interest of the student. Requires a minimum of (3) laboratory work per week for each hour of credit. A written report of the work is required.

**CHEM 412. INTRODUCTION TO PHYSICAL CHEMISTRY. (5)** *Prerequisites: CHEM 330 and MATH 118.* A study of the chemical principles involved in thermodynamics, kinetics, equilibrium, surface phenomena, macromolecules, molecular structure and other selected topics using biological examples. The course is specifically for secondary education students and those students not qualifying for the CHEM 450-452 sequence. It is not acceptable for the ACS-program students. (course fee)

**CHEM 420. INORGANIC CHEMISTRY. (3)** *Prerequisites: CHEM 452-453 or concurrently with 452-453.* A study of such topics as atomic structure, molecular structure, bonding theory, ionic substances, electron deficient compounds, acid-base theory, coordination chemistry, and organometallic chemistry.

**CHEM 425. POLYMER CHEMISTRY. (4)** *Prerequisites: CHEM 342/343 and CHEM 330 with a grade of "C" or better.* The principles of polymer chemistry, synthesis of polymers, reactions of synthetic and biological polymers, thermodynamics and kinetics of polymerization, characterization of polymers such as molecular weights and morphology and fabrication and application of polymeric materials. (course fee)

**CHEM 430. FORENSIC CHEMISTRY. (3)** *Prerequisite: CHEM 330.* A study of the methods and instrumentation used in the crime laboratory and in the medical technology laboratory. Topics discussed will include drugs, blood enzymes, organic and inorganic analysis, gunshot residue, fingerprints, chromatography, spectrophotometry, electrochemistry and electrophoresis. (course fee)

**CHEM 435. INSTRUMENTAL ANALYSIS. (3)** *Prerequisites: CHEM 452-453.* A course in modern instrumental methods of analysis including spectroscopic, electroanalytical and chromatographic techniques. (course fee)

**CHEM 440. INTRODUCTION TO SYNTHETIC ORGANIC METHODOLOGY. (3)** *Prerequisites: CHEM 342 with a grade of "C" or better.* An advanced course designed to address a broad spectrum of topics including an overview of the year-long organic chemistry sequence and a systematic treatment of modern synthetic organic chemistry focusing on basic reactions and methodologies.

**CHEM 446. BIOCHEMISTRY I. (3)** *Prerequisite: CHEM 314 or 340.* A study of biochemical compounds and their role in intermediary metabolism. Special topics include biochemical energetics and coenzyme mechanisms. Equivalent to BIOL 446.

**CHEM 447. BIOCHEMISTRY LABORATORY. (2)** *Corequisite or prerequisite: BIOL/CHEM 446.* A basic laboratory study involving selected experiments which illustrate biochemical principles including separation, identification and chemical properties of carbohydrates, lipids, proteins and enzymes. Equivalent to BIOL 447. (course fee)

**CHEM 450. PHYSICAL CHEMISTRY I. (3)** *Prerequisites: CHEM 330, PHYS 270. Corequisites: CHEM 451, MATH 137.* A study of theoretical chemistry, including such topics as gaseous state, solid state, liquid state, thermodynamics, thermochemistry and phase and chemical equilibria.

**CHEM 451. PHYSICAL CHEMISTRY I LABORATORY. (2)** *Prerequisite: CHEM 330. Corequisite: CHEM 450.* A laboratory to accompany CHEM 450 and includes experiments on state of matter, surface phenomena, macromolecules, thermochemistry, thermodynamics and equilibria. (course fee)

**CHEM 452. PHYSICAL CHEMISTRY II. (3)** *Prerequisites: CHEM 450-451. Corequisite: CHEM 453.* A continuation of CHEM 450 including studies of kinetics, atomic and molecular structure, theory of chemical bonding, electromotive force and selected topics.

**CHEM 453. PHYSICAL CHEMISTRY II LABORATORY. (2)** *Corequisite: CHEM 452.* A laboratory to accompany CHEM 452 and includes experiments on chemical kinetics, spectroscopy, molecular structure, electrochemistry and mass spectroscopy. (course fee)

**CHEM 462. BIOINORGANIC CHEMISTRY. (3)** *Prerequisite: CHEM 314 or equivalent.* This course is a study of the coordinating properties and reactivity of metal ions in living organisms. Metal ion toxicity and detoxification systems and functions of various metalloenzymes will be discussed.

**CHEM 467. BIOCHEMISTRY II. (3)** *Prerequisite: BIOL/CHEM 446.* A study of the reactions of living systems and an introduction to the mechanisms and energetics of metabolism. Equivalent to BIOL 467.

**CHEM 470. CHEMISTRY/ MIDDLE SCHOOL. (4)** Chemical theories and principles in the middle school science curricula. (elective credit only).

**CHEM 475. SELECTED TOPICS IN CHEMISTRY. (3)** *Prerequisite: Consent of instructor.* Special topics are presented to acquaint advanced students with significant problems and developments of current interest in the fields of analytical, biological, inorganic, organic, physical, polymer and coal chemistry. The course may be repeated for credit provided topics differ.

**CHEM 476. ADVANCED INVESTIGATIONS IN CHEMISTRY LABORATORY. (2)** *Prerequisite: CHEM 314 or 343.* A course for advanced students involving assigned laboratory work in the field of inorganic chemistry. Typical procedures and experiments are those involving the synthesis, characterization, and identification of various chemical compounds, using a variety of handling techniques, and the application of various physical methods. (course fee)

**CHEM 489. COOPERATIVE EDUCATION IN CHEMISTRY III. (3-6)** *Prerequisite: Senior standing.* Practical out-of-the classroom experience in a supervised work situation with a cooperating business, industry, or governmental agency, emphasizing laboratory skills in chemistry.

**CHEM 490. MATERIALS CHEMISTRY. (3)** *Prerequisites: CHEM 412 or 452 and CHEM 330, or equivalent.* A study of the three major classes of materials: metals, polymers, and ceramics. Topics discussed will include chemical composition, bonding, common chemical and physical properties, microstructures, and how processing and uses are affected by a material's chemical and physical properties.



**CHEM 491. MATERIALS CHEMISTRY LABORATORY. (3)** *Prerequisites: CHEM 330 and either CHEM 412 or 452, or permission of the department.* A laboratory course in materials that includes experiments on liquid flow, solid deformation, thermal properties, electrical conductivity of materials, microscopy, diffraction techniques, processing and testing of shaped articles.

**CHHS— COLLEGE OF HEALTH AND HUMAN SERVICES**  
COLLEGE OF HEALTH AND HUMAN SERVICES

**CHHS 175. UNIVERSITY EXPERIENCE – HEALTH AND HUMAN SERVICES. (3)** *Prerequisite: For beginning college freshman or transfer students with fewer than 2(4) of degree credit.* Transition to university experience. Topics include study skills, critical thinking skills, library education, campus resources, and personal development. Special emphasis on careers and degree programs related to the fields of health and human services.

**CHIN— CHINESE**  
DEPARTMENT OF MODERN LANGUAGES

**CHIN 100. CHINESE LANGUAGE AND CULTURE ON-SITE. (1-3)** An introduction to Chinese and Chinese-speaking culture in conjunction with study abroad for students with little or no previous language study. Does not fulfill the general education foreign language requirement. May be repeated for a total of three credits.

**CHIN 101. ELEMENTARY CHINESE I. (3)** Conversational Mandarin with basic grammar and basic functional vocabulary of the Chinese language. Includes aspects of contemporary Chinese culture. (course fee) [GEN ED A-II]

**CHIN 102. ELEMENTARY CHINESE II. (3)** *Prerequisite: CHIN 101 or equivalent.* Continuation of development of basic grammar and functional language skills of Mandarin. Includes aspects of contemporary Chinese culture. (course fee) [GEN ED A-II]

**CHIN 105. INTRODUCTION TO CHINESE CULTURES. (3)** Survey of contemporary culture of Chinese-speaking peoples, with emphasis on values, behavioral characteristics, social and political structures, and their achievements. Taught in English; only taught abroad.

**CHIN 201. INTERMEDIATE CHINESE I. (3)** *Prerequisite: CHIN 102 or two years of high school Chinese.* Expansion of communication skills in increasingly complex and varied situations. Emphasis on conversational speaking, presentational writing and speaking, and understanding culturally specific texts and media. [GEN ED A-II]

**CHIN 202. INTERMEDIATE CHINESE II. (3)** *Prerequisite: CHIN 201 or equivalent.* Continued expansion of interpersonal communication skills at the intermediate level. Emphasis on increasing comprehension, the building of vocabulary, and on presentational modes of speaking and writing. [GEN ED A-II]

**CHNF – CHINESE FLAGSHIP**  
HONORS COLLEGE

**CHNF 101. INTENSIVE ELEMENTARY CHINESE I. (4)** *Prerequisite: Enrollment in the Chinese Flagship Program, or instructor permission.* Introductory instruction to Chinese reading, writing and conversational skills through exposure to daily life topics; designed for students with no previous study of Chinese.

**CHNF 102. INTENSIVE ELEMENTARY CHINESE II. (4)** *Prerequisite: CHNF 101.* Continued introductory intensive instruction in Chinese; designed to further build students' communication skills to an intermediate level.

**CHNF 201. INTENSIVE INTERMEDIATE CHINESE I. (4)** *Prerequisite: CHNF 102.* Intensive instruction in Chinese, designed to develop students' language skills and all-round communicative competence to a novice-high to intermediate-low level.

**CHNF 202. INTENSIVE INTERMEDIATE CHINESE II. (4)** *Prerequisite: CHNF 201.* Intensive instruction in Chinese, designed to further develop students' language skills and all-round communicative competence to an intermediate-low to intermediate-mid level.

**CHNF 301. INTENSIVE ADVANCED CHINESE I. (4)** *Prerequisite: CHNF 202.* Continued intensive instruction in Chinese, designed to further develop students' language skills and all-round communicative competence to intermediate-mid to intermediate-high level.

**CHNF 302. INTENSIVE ADVANCED CHINESE II. (4)** *Prerequisite: CHNF 202.* Continued intensive instruction in Chinese designed to further develop students' language skills and all-round communicative competence to intermediate-high to advance-low level.

**CIS – COMPUTER INFORMATION SYSTEMS**  
DEPARTMENT OF COMPUTER INFORMATION SYSTEMS

**CIS 141. BASIC COMPUTER LITERACY. (3)** An introduction to the breadth of information technology and the role of computer based devices for everyday problem solving in life, work and research. Practical experience with current as well as emerging technologies is provided. Students who have earned credit in CIS 145 may not enroll in CIS 141. (course fee)

**CIS 226. INTRODUCTION TO VISUAL PROGRAMMING. (3)** A study in the algorithmic approach of the analysis of problems and their solutions. A visual programming language will be introduced and used in solving assigned problems. Laboratory work will be required outside of class meetings

**CIS 243. PRINCIPLES OF MIS. (3)** *Prerequisite: CIS 141 or CS 145.* The basis of information systems and how they fit into a decision-making environment. An introduction to systems analysis in relation to managing information systems. Strategic uses of information technology throughout the business enterprise. (course fee)

**CIS 248. SYSTEMS INTEGRATION. (3)** Continuing coverage of programming with emphasis on integrating and designing useful graphical user interfaces to enter, edit and retrieve information from existing databases. Secondary emphasis will be on generating complicated detailed reports.

**CIS 320. PERSONAL INFORMATION TECHNOLOGIES. (3)** *Prerequisite: CIS 141 or CIS 145.* The management and deployment of personal productivity technologies, including management of facilities, workstations, and support services. Particular emphasis is placed on using technology tools to increase productivity and quality. (course fee)

**CIS 321. EMERGING INFORMATION TECHNOLOGIES. (3)** *Prerequisite: CIS 141 or CS 145.* Overview of the most recent tools and techniques in information technology, and their utilization in the business environment. (course fee)

**CIS 369. COOPERATIVE EDUCATION IN INFORMATION SYSTEMS. (1-3)** *Prerequisite: Application for or enrollment in Cooperative Education Plan; approval of department and Co-op Faculty Advisor; development of Learning Plan; CIS 141 or CS 145, CIS/CS 226 and CIS 243 with a grade of "C" or better. Note: A minimum 2.5 GPA is required for enrollment in this course.* Practical out-of-the-classroom experience in a supervised work situation with a cooperating business, industry, social or governmental agency applying information systems theory. (Grading: Pass/Fail)

**CIS 440. SELECTED TOPICS-INFORMATION SYSTEMS. (1.5 or 3)** *Prerequisites: Admission to the CIS program and permission of instructor.* Study of an advanced topic not normally covered in other Computer Information Systems courses. (Some topics may require additional prerequisites)

**CIS 449. INDEPENDENT STUDY IN COMPUTER INFORMATION SYSTEMS. (3)** *Prerequisite: CIS 243.* Directed study and research in one area of computer information systems.

**CIT – COMPUTER INFORMATION TECHNOLOGY**  
DEPARTMENT OF COMPUTER INFORMATION SYSTEMS

**CIT 300. ON-LINE TRAINING FOUNDATIONS. (3)** *Prerequisite: Admission to the CIT program.* Introduces students to educational technology and the distance education process necessary for the CIT program.

**CIT 302. WEB DEVELOPMENT. (3)** *Prerequisite: CIT 300 or permission of the instructor.* Introductory course in web design and development. Provides students with strategies and skills to plan and develop commercial web sites.

**CIT 310. SYSTEMS ARCHITECTURE I. (3)** *Prerequisite: CIT 300.* Introduction to applied technology and computer architecture. Emphasis will be on hardware specification and selection, troubleshooting, maintenance and optimizing system performance.

**CIT 312. SYSTEMS ARCHITECTURE II. (3)** *Prerequisite: CIT 310.* Introduction to software elements of the computer, including operating systems, programming tools and system utilities. Course will emphasize these elements in an applied, organizational context.

**CIT 330. SYSTEMS DEVELOPMENT I. (3)** *Prerequisite: CIT 300.* Emphasis on developing structured system applications and program logic. Assumes no prior experience with system development and does not focus on any particular language.

**CIT 332. SYSTEMS DEVELOPMENT II. (3)** *Prerequisite: CIT 330.* Study of system-development tools commonly used in businesses and organizations. Topics include interfacing systems with databases and web applications.

**CIT 350. DATABASE ADMINISTRATION I. (3)** *Prerequisite: CIT 300.* Introduction to database applications and related fundamentals including database models, normalization and principles of effective database design.

## Course Descriptions

**CIT 352. DATABASE ADMINISTRATION II. (3)** *Prerequisite: CIT 350.* A continuation of CIT 350 with emphasis on developing distributed database solutions, client-server models for business use and advanced SQL.

**CIT 370. TELECOMMUNICATIONS I. (3)** *Prerequisite: CIT 300.* Overview of modern networking systems, including networking fundamentals, local-area networks, routing addressing, wide-area networks, remote access and security. Emphasis on applied technology used in organizational settings.

**CIT 372. TELECOMMUNICATIONS II. (3)** *Prerequisite: CIT 370.* Introduction to the TCP/IP protocol, its use in an organizational environment and the different sub-protocols that underlie popular business applications.

**CIT 412. ADVANCED SYSTEMS ARCHITECTURE I. (3)** *Prerequisite: CIT 312.* A continuation of CIT 312 with a focus on enterprise architecture and how to design computer system solutions using industry-standard operating systems and tools.

**CIT 414. ADVANCED SYSTEMS ARCHITECTURE II. (3)** *Prerequisite: CIT 412.* Examines both the managerial aspects of system design – build-vs.-buy, labor and related strategic decisions – and administration of corporate networks and related systems.

**CIT 416. SYSTEMS ADMINISTRATION I. (3)** *Prerequisite: CIT 312.* Strategies and techniques to prepare students for enterprise server design, implementation and maintenance, including advanced networking hardware and software tools.

**CIT 418. SYSTEMS ADMINISTRATION II. (3)** *Prerequisite: CIT 416.* A continuation of CIT 416 that provides more in-depth analysis of system architecture and administration, developing strategic advantage through appropriate investments in technology and contemporary issues in enterprise computing and management.

**CIT 432. ADVANCED SYSTEMS DEVELOPMENT I. (3)** *Prerequisite: CIT 332.* Focuses on advanced system-development approaches. Students will utilize modern development tools to build business systems and applications.

**CIT 434. ADVANCED SYSTEMS DEVELOPMENT II. (3)** *Prerequisite: CIT 432.* Focuses on the managerial aspects of systems development. Analyzes the various stakeholders of enterprise software architectures, including software architects, designers, analysts, developers, members of IT strategy departments and project managers.

**CIT 436. WEB SYSTEMS DEVELOPMENT I. (3)** *Prerequisite: CIT 302 and CIT 332.* Emerging trends in web-based applications and how they are developed. Emphasis on building business-oriented solutions using web technology and the Internet.

**CIT 438. WEB SYSTEMS DEVELOPMENT II. (3)** *Prerequisite: CIT 436.* A continuation of CIT 436 providing additional coverage of web service and application topics. Also emphasizes integration with existing database systems and legacy applications.

**CIT 452. ADVANCED DATABASE ADMINISTRATION I. (3)** *Prerequisite: CIT 352.* Focuses on administering the enterprise database system. Emphasizes implementation and administration issues associated with large-scale database systems.

**CIT 454. ADVANCED DATABASE ADMINISTRATION II. (3)** *Prerequisite: CIT 452.* A continuation of CIT 452. Related managerial issues are emphasized in this course. Topics include data warehousing, data mining and distributed database systems administration.

**CIT 456. SYSTEMS ANALYSIS & DESIGN I. (3)** *Prerequisite: CIT 352.* Modern analysis and design techniques with an emphasis on developing organizational systems.

**CIT 458. SYSTEMS ANALYSIS & DESIGN II. (3)** *Prerequisite: CIT 456.* Analysis and design of object-oriented systems.

**CIT 472. ADVANCED TELECOMMUNICATIONS I. (3)** *Prerequisite: CIT 372.* Strategies for planning, designing and implementing wireless networks including Wi-Fi ad hoc networks, hybrid wireless, etc. as part of an overall organizational network strategy.

**CIT 474. ADVANCED TELECOMMUNICATIONS II. (3)** *Prerequisite: CIT 472.* Emerging networking technologies that create value and strategic advantage for business users. Emphasis on integrating networking technologies with existing systems and infrastructure.

**CIT 476. NETWORK ADMINISTRATION I. (3)** *Prerequisite: CIT 372.* Network administration and management with an emphasis on technologies and tools for supporting large-scale business networks.

**CIT 478. NETWORK ADMINISTRATION II. (3)** *Prerequisite: CIT 476.* The latest Microsoft technologies and tools for supporting network administration in organizational environments.

**CIT 482. SYSTEMS SECURITY I. (3)** *Prerequisite: CIT 300 and permission of instructor.* An examination of computer and corporate security in business settings, emphasizing security implementation within corporations using commercial tools and technologies.

**CIT 484. SYSTEM SECURITY II. (3)** *Prerequisite: CIT 482.* A continuation of CIT 482 that provides additional study and experience with managerial/operational issues affecting the security of enterprise computers and networks; examines available tools and opportunities in the field.

**CIT 486. KNOWLEDGE MANAGEMENT. (3)** *Prerequisite: CIT 300 and permission of instructor.* Examines computer-based knowledge – how organizations can capture, store, share and effectively manage their intellectual resources.

**CIT 492. TECHNOLOGY MANAGEMENT I. (3)** *Prerequisite: CIT 300 and permission of instructor.* Examines the management of technological projects including planning, implementation, control, quality, time and budget.

**CIT 494. TECHNOLOGY MANAGEMENT II. (3)** *Prerequisite: CIT 492.* A practical examination of information technology with emphasis on the tactical and operational role of IT in an organization.

**CIT 496. TECHNOLOGY SUPPORT ADMINISTRATION. (3)** *Prerequisite: CIT 300 and permission of instructor.* Explores the challenge of supporting technology resources within an organizational setting and presents current strategies and tools employed by managers to support users and technologies across the firm.

### CM – CONSTRUCTION MANAGEMENT

#### DEPARTMENT OF ARCHITECTURAL AND MANUFACTURING SCIENCES

**CM 227. APPLIED STATICS. (3)** *Prerequisites: MATH 122 and PHYS 201.* A branch of mechanics dealing with forces and the effects of forces acting on bodies at rest. Topics include: vector operations, applied loads, forces, moments of a force, couples, resultants, free-body diagrams, equilibrium, friction, centroids, centers of gravity and moments of inertia. Applications involve beams, frames, trusses, cables, pulleys, sheaves and machines. (Does not count toward any engineering major) (course fee)

**CM 250. CONTRACT DOCUMENTS. (3)** Introduction to construction documents including drawings, specifications, contracts, requests for information, change orders, bid packages, addenda, and transmittals. In addition, techniques for reading engineering and shop drawings will be introduced. (course fee)

**CM 337. APPLIED STRENGTH OF MATERIALS. (3)** *Prerequisite: CM 227 or permission of instructor. Corequisite: CM 339.* Basic design applications using primary building materials and concepts of stress, strain, and elastic deformation, including axial, torsional, shearing, flexural, and combined stresses, elongation, and deflection, shear and moment diagrams, column buckling, and material testing. (course fee)

**CM 339. APPLIED STRENGTH OF MATERIALS LAB. (1)** *Corequisite: CM 337.* Testing of metals and non-metals in support of material covered in CM 337. Experiments: Rockwell Hardness, impact, tension, torsion, flexure, deflection, compression, column buckling, bolt shear, bearing on connections.

**CM 346. APPLIED SOIL MECHANICS AND FOUNDATIONS. (3)** *Prerequisite: CE 303 or junior standing.* An applied course in soil mechanics and foundations, including soil composition and classification, soil compaction and site work, lateral earth pressures and retaining walls, and an introduction to foundation design and construction including both deep and shallow foundations. (course fee)

**CM 361. COMPUTER APPLICATIONS IN CONSTRUCTION MANAGEMENT. (3)** *Prerequisite: CE 360.* The utilization of modern construction management computer programs for estimating and scheduling the construction process. Topics include detailed estimating, quantity take-offs using a digitizing board, detailed scheduling and project control.

**CM 363. CONSTRUCTION ESTIMATING AND BIDDING. (3)** *Prerequisite: CE 303.* Methods and procedures for estimating and bidding construction projects, including extracting quantity take-off's from drawings, classifying work in accordance with specifications, compiling and pricing estimates, preparing bids, and computer applications. (course fee)

**CM 400. CONSTRUCTION ADMINISTRATION. (3)** *Prerequisite: CE 303.* Basic principles of construction project administration including finances, legal requirements including permits, cost control, safety and quality management, office organization, site planning, document control, project tracking and risk management. (course fee)

**CM 426. CONSTRUCTION LAW. (3)** *Prerequisite: CE 303 or junior standing.* Introduction to law and judicial procedures as they relate to the practicing construction manager. Contracts, bonds, professional liability, professional ethics, bidding procedures, liens, product liability. Emphasis on development of critical thinking process, abstract problem analysis, and evaluation. (course fee)

**CM 447. APPLIED STRUCTURAL DESIGN. (3)** *Prerequisite:* CM 337. Basic design of permanent and temporary structural components using the primary building materials.

**CM 462. CONSTRUCTION SCHEDULING. (3)** *Prerequisite:* CE 303. Various components of construction project scheduling including work breakdown structures, activity duration estimates, scheduling logic, precedence networking, Gantt charts, CPM and PERT techniques, resource scheduling, schedule updating and reduction and computer applications. (course fee)

**CM 463. CONSTRUCTION ESTIMATING AND BIDDING II. (3)** *Prerequisite:* CM 363. Advanced estimating and bidding procedures using commercially available software and spreadsheets. Includes quantity take-offs and estimating techniques of various construction trades beyond those covered in CM 363. (course fee)

**COMM / COMN – COMMUNICATION  
DEPARTMENT OF COMMUNICATION (COMM)  
DEPARTMENT OF LIBERAL ARTS AND SCIENCES (COMN)**

**COMM 142. FORENSIC PRACTICUM I. (1)** *Prerequisite:* Active participation on the forensic team. Individualized coaching and intercollegiate competitive experience in debate and individual events.

**COMM 144. FORENSIC PRACTICUM II. (1)** *Prerequisites:* COMM 142 and active participation on the forensic team. Individualized coaching and intercollegiate competitive experience in debate and individual events.

**COMM 145 / COMN 145C. FUNDAMENTALS OF PUBLIC SPEAKING AND COMMUNICATION. (3)** A beginning course in the preparation and delivery of public speeches (informative and persuasive), with skills development in listening, teamwork, and interpersonal communication contexts. (course fee) [GEN ED A-III]

**COMM 161 / COMN 161C. BUSINESS AND PROFESSIONAL SPEAKING. (3)** This course will examine the speech communication process in business and professions through studying principles and offering practical experience in the following areas: communication process, interpersonal relations, interviewing and counseling, conference and group processes, manuscript speaking, persuasion in selling, telephone communications, and situational speech. [GEN ED A-III] (course fee)

**COMM 200. COMMUNICATION FOUNDATIONS. (3)** *Prerequisite:* COMM 145 or 161. An introductory course to foundational communication contexts, theories, and processes.

**COMM 240. CRITICAL LISTENING. (3)** A study of contextual, psychological and logical bases of listening and training in listening for comprehension, analysis, synthesis, and evaluation. Focus on critical listening skills in face-to-face, mediated, interactive and public settings.

**COMM 242. FORENSIC PRACTICUM III. (1)** *Prerequisite:* COMM 144 and active participation on the forensic team. Individualized coaching and intercollegiate competitive experience in debate and individual events.

**COMM 244. FORENSIC PRACTICUM IV. (1)** *Prerequisite:* COMM 242 and active participation on the forensic team. Individualized coaching and intercollegiate competitive experience in debate and individual events.

**COMM 245. ARGUMENTATION AND DEBATE. (3)** A beginning course in argumentation and debate, emphasizing construction, analysis, and refutation of arguments. Classroom experience is provided in academic debating.

**COMM 247. VOICE AND DICTION. (3)** A detailed study of the individual's speech. Achieving a pleasing voice quality, correct articulation, distinct enunciation and diction free from substandard pronunciation, are goals of the course.

**COMM 249. INTERPRETATION OF LITERATURE. (3)** Introduction to the study of literature through oral performance with an emphasis on techniques used with various types of literature.

**COMM 263. FUNDAMENTALS OF COMMUNICATION AND CULTURE (3)** This course provides an overview of communication patterns as influenced by surrounding culture and how culture is created and sustained through communication. It focuses on American multicultural perspectives that impact social and business communication in today's world. [GEN ED E]

**COMM 300. INTRODUCTION TO COMMUNICATION RESEARCH METHODS. (3)** *Prerequisites:* COMM 145 or 161, MATH 109 or 116. *Prerequisite/Corequisite:* COMM 200. Introduction to rhetorical, qualitative, and quantitative methods of inquiry used in communication research.

**COMM 330. LEADERSHIP COMMUNICATION. (3)** Studies the role that communication plays in various leadership contexts and situations.

**COMM 340. PARLIAMENTARY PROCEDURE. (1)** A study of accepted practices in parliamentary procedure. This course is designed to prepare students to preside over and participate in business meetings.

**COMM 342. FORENSIC PRACTICUM V. (1)** *Prerequisite:* COMM 244 and active participation on the forensic team. Individualized coaching and intercollegiate competitive experience in debate and individual events.

**COMM 343. SPEECH ANALYSIS AND SPEECH WRITING. (3)** *Prerequisite:* COMM 145 or 161 or permission of the instructor. A course in the art of writing effective speeches. In this course, students study the principles of effective language usage in speeches, analyze the style of model speeches, and write and deliver a variety of speeches.

**COMM 344. FORENSIC PRACTICUM VI. (1)** *Prerequisites:* COMM 342 and active participation on the forensic team. Individualized coaching and intercollegiate competitive experience in debate and individual events.

**COMM 345. ADVANCED PUBLIC SPEAKING. (3)** *Prerequisite:* COMM 145 or 161 or permission of the instructor. An advanced course in the preparation and delivery of public speeches including speeches to explain a concept, technical speeches, speeches to convince, speeches to actuate, speeches to entertain, and speeches for special occasions.

**COMM 346. PERSUASION. (3)** This course introduces basic theory of persuasion and attitude change. The course emphasizes communication theory and rhetorical perspectives of persuasion.

**COMM 348. INTERPERSONAL COMMUNICATION. (3)** Introduces students to the fundamentals of interpersonal communication, including interpersonal skills, theory, and research.

**COMM 349. SMALL GROUP COMMUNICATION. (3)** An intensive study of group dynamics, interaction and communication in group situations.

**COMM 362. ORGANIZATIONAL COMMUNICATION. (3)** An introduction to the theoretical approaches to human communication in organizations.

**COMM 374. GENDER COMMUNICATION. (3)** Examination of communication behaviors as affected by gender, including assessment of communication differences reflected in organizational, interpersonal, and mass communication modes.

**COMM 388. SEMINAR IN POLITICAL COMMUNICATION. (3)** *Prerequisites:* Senior standing, or permission of instructor. The role, processes, and effects of communication within the context of politics. This course is required of all Political Communication Certificate students.

**COMM 400. SPECIAL TOPICS IN COMMUNICATION. (3)** *Prerequisite:* COMM 200. *Prerequisite/Corequisite:* COMM 300 or instructor permission. Designed to offer students courses on various communication topics not covered specifically within the curriculum.

**COMM 440. HEALTH COMMUNICATION. (3)** *Prerequisite:* COMM 200 or instructor permission. *Prerequisite/Corequisite:* COMM 300 or instructor permission. Examines and analyzes the critical role communication plays in health campaigns, health care delivery, health care contexts, and in health behavior change.

**COMM 442. FORENSIC PRACTICUM VII. (1)** *Prerequisites:* COMM 344 and active participation on the forensic team. Individualized coaching and intercollegiate competitive experience in debate and individual events.

**COMM 444. FORENSIC PRACTICUM VIII. (1)** *Prerequisites:* COMM 442 and active participation on the forensic team. Individualized coaching and intercollegiate competitive experience in debate and individual events.

**COMM 448. ADVANCED INTERPERSONAL COMMUNICATION. (3)** *Prerequisites:* COMM 200 and 348. *Prerequisite/Corequisite:* COMM 300 or instructor permission. Designed as a survey of research and theory in interpersonal communication.

**COMM 450. FAMILY COMMUNICATION. (3)** *Prerequisites:* COMM 200 and 348. *Prerequisite/Corequisite:* COMM 300 or instructor permission. Designed as a survey of research and theory in family communication.

**COMM 451. COMPUTER-MEDIATED COMMUNICATION. (3)** *Prerequisite:* COMM 200 or instructor permission. *Prerequisite/Corequisite:* COMM 300 or instructor permission. Examines various types of computer-mediated communication available in contemporary organizations.

**COMM 460. ORGANIZATIONAL INTERVIEWING. (3)** *Prerequisite:* COMM 200 or instructor permission. *Prerequisite/Corequisite:* COMM 300 or instructor permission. This course is designed to provide the student with a comprehensive overview of principles and methods suited to oral, one-on-one information gathering in an organizational setting. Practice both in and out of the classroom will be stressed.



## Course Descriptions

**COMM 462. ADVANCED ORGANIZATIONAL COMMUNICATION. (3)** Prerequisites: COMM 200 and 362. Prerequisite/Corequisite: COMM 300 or instructor permission. Integrated and applied study of organizational communication theory and research.

**COMM 463. INTERCULTURAL COMMUNICATION. (3)** Prerequisite: COMM 200 or instructor permission. Prerequisite: COMM 300 or instructor permission. This course is designed to create an understanding of dimensions of communication theory that apply across cultural boundaries. Emphasis is placed on both theoretical and practical awareness of communication in and between cultures.

**COMM 470. ORGANIZATIONAL RELATIONSHIPS. (3)** Prerequisites: COMM 200 and 362. Prerequisite/Corequisite: COMM 300 or instructor permission. An examination of the positive and negative elements of workplace relationships and its importance to organizational and personal well-being.

**COMM 489. INTERNSHIP IN COMMUNICATION. (3)** Prerequisites: COMM 200, 362. Junior standing. For department majors only. Prerequisite/Corequisite: COMM 300. Appropriate supervised work with a cooperating organization. Open only to Communication Studies and Corporate and Organizational Communication majors. Course will be repeatable once for credit (only 3 hours will count for credit toward major).

**COMM 494. CAPSTONE IN COMMUNICATION. (1)** Prerequisite: COMM 200 Senior standing, for departmental majors only. This portfolio-style course enables Corporate and Organizational Communication and Communication Studies majors to assess and refine knowledge and skill competencies.

**COMM 495. INDEPENDENT STUDY IN COMMUNICATION. (1-6)** Prerequisite: COMM 200 or instructor permission. Prerequisites or corequisite: COMM 300 Directed research in communication. Students are to submit written petitions for faculty approval of the study during the previous semester. With permission of instructor.

### CNS / COUN – COUNSELOR EDUCATION DEPARTMENT OF COUNSELING AND STUDENT AFFAIRS (CNS) DEPARTMENT OF LIBERAL ARTS AND SCIENCES (COUN)

**CNS 100 / COUN 100C. EDUCATIONAL AND LIFE PLANNING. (2)** Emphasis on self exploration, educational planning, and development of decision-making skills. This course will emphasize assisting students with short- and long-term goal setting and conceptualizing appropriate educational objectives. Various academic programs available at Western Kentucky University will be described and related to educational and life planning.

**CNS 269. SPECIAL TOPICS IN COUNSELING/GUIDANCE. (1-3)** Selected topics of significance in counseling and helping relationships. Classroom activities and assignments are variable with credit.

### CS / CSCI – COMPUTER SCIENCE DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE (CS) DEPARTMENT OF LIBERAL ARTS AND SCIENCES (CSCI)

**CS 121. COMPUTATIONAL PROBLEM SOLVING. (4)** Prerequisite: Enrollment in the Gatton Academy of Mathematics and Science in Kentucky. Students will tackle problems ranging from elementary to advanced, using mathematical methods, algorithmic techniques, and computational methods. This course is taught jointly by mathematics and computer science faculty; it is equivalent to MATH 121.

**CS 145 / CSCI 145C. INTRODUCTION TO COMPUTING. (3)** Prerequisite: Two years of high school college preparatory mathematics. An introduction to the use of the computer that explores what a computer is, what it can do, and how it does it. The following topics are surveyed: hardware, software, telecommunications, programming languages, software development, a short history of computing, and the computer's impact on society. Projects in word processing, spreadsheets, file management, and BASIC are assigned. NOT ACCEPTABLE FOR CREDIT IN COMPUTER SCIENCE MAJOR OR MINOR. (course fee)

**CS 146. INTRODUCTION TO PROGRAMMING. (3)** Prerequisite: Two years of high school algebra or concurrent enrollment in a college algebra course. A study of the algorithmic approach in the analysis of problems and their computational solutions. A structured language will be introduced and used in solving assigned problems. Lab sessions may be held in addition to lecture sessions. NOT ACCEPTABLE FOR CREDIT IN COMPUTER SCIENCE MAJOR OR MINOR.

**CS 157. INFORMATION SECURITY I. (3)** An introduction to the concepts, issues, and essential skills of computer security. Topics include computer-based systems, Internet communications, networking, and security. Laboratory sessions will be held as needed. May not be counted toward a computer science major or minor.

**CS 170. PROBLEM SOLVING AND PROGRAMMING. (3)** Prerequisite: Two years of high school algebra. The fundamentals of problem solving, program design, and program development techniques. A high-level programming language is used and lab experiences are included. The course may not be counted toward a computer science major or minor.

**CS 175. UNIVERSITY EXPERIENCE – COMPUTER SCIENCE. (2)** Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers degree programs, campus resources and personal development. Special attention is given to educational requirements, careers, and resources in the field of computer science.

**CS 180. COMPUTER SCIENCE I. (4)** Prerequisite: CS 170 with a grade of C or higher, or a satisfactory score on a CS placement test, or eligibility for MATH 117 (based on criteria developed by the Department of Mathematics and Computer Science.) A study of the algorithmic approach to the analysis of problems and their computational solutions, using a high-level structured language. Labs are included in the course.

**CS 181. COMPUTER SCIENCE II. (4)** Prerequisites: PHIL 215 and CS 180 with grades of C or better, and eligibility to enroll in a calculus course based on criteria developed by the Department of Mathematics and Computer Science. Continued study of algorithmic problem solving techniques using software engineering and a high-level programming language. Introduction to data structures and their applications. Labs are included in the course.

**CS 225. COMPUTER SCIENCE SYSTEMS HARDWARE AND SOFTWARE I. (4)** Prerequisite: Grade of "C" or better in CS 180. Introduction to computer architecture and organization, computer number representations, digital logic and circuitry, types of memory, CPU operations and basic assembly programming. A lab component applies systems hardware and software.

**CS 226. INTRODUCTION TO VISUAL PROGRAMMING. (3)** Prerequisites: Two years of high school algebra or concurrent enrollment in college algebra course. A study in the algorithmic approach of the analysis of problems and their solutions. A visual programming language will be introduced and used in solving assigned problems. Laboratory work will be required outside of class meetings. NOT ACCEPTABLE FOR CREDIT IN COMPUTER SCIENCE MAJOR OR MINOR.

**CS 239. PROBLEM SOLVING WITH COMPUTATIONAL TECHNIQUES. (3)** Prerequisite: MATH 117 or higher. Solving engineering problems using computational techniques. Topics include problem definition, algorithm development, flowcharting, input/output and structured programming. (May count as 1.5 hours towards a major/minor in Computer Science.)

**CS 244. COMPUTER SCIENCE I LABORATORY. (1)** Corequisite: Student must be concurrently enrolled in CS 240. The structured lab component of CS 240. An opportunity for hands-on reinforcement of the topics being covered in lecture. Required for CS majors/minors.

**CS 245 / CSCI 245C. INTRODUCTION TO A COMPUTER PROGRAMMING LANGUAGE. (1.5)** Prerequisites: A grade of "C" or better in CS 146 (or equivalent) and consent of instructor. Designed to introduce the syntax, advantages, limitations, and selected applications of a particular programming language such as ADA, BASIC, C, FORTRAN, LISP, COBOL, PL/I, or assembly language. Will not count toward a computer science major or minor if credit is received for an introduction to the same language in another course. May be repeated for up to 3 semester hours credit.

**CS 249. CONSULTING PRACTICUM IN COMPUTER SCIENCE. (1-2)** Prerequisites: Consent of the instructor. An opportunity for undergraduates to utilize computer skills and enhance communication abilities by serving as consultants for lower divisional students on computer laboratory assignments. Will not count as hours toward the major/minor. May be repeated for up to a total of four hours credit with a maximum of two hours per semester. (One hour of semester credit requires four non-paid hours per week of consulting time in the laboratory). (Grading: Pass/Fail)

**CS 250. SOCIAL IMPLICATIONS OF COMPUTING. (1.5)** Co-requisite: CS 180. A survey course on the role of computing in society, designed primarily for computer science majors and minors. Discusses current topics related to the use of computing and associated trends.

**CS 251. INTRODUCTION TO DATABASE SYSTEMS. (3)** Prerequisite: CS 181. An introduction to relational database management systems and their applications, including the essential skills and methods for the design, development, and implementation of database systems.

**CS 257. INFORMATION SECURITY II. (3)** *Prerequisite:* CS 157 with a grade of "C" or better. An overview of information security technologies, management practices and current standards. Topics include security models and technologies, threat analysis and security implementation, risk and incident response management and security policy. Lab sessions will be held as needed. May not be counted toward a computer science major or minor.

**CS 270. INTRODUCTION TO WEB PROGRAMMING. (3)** *Prerequisites:* CS 146, or CS 170, or CS 180. Introductory course in web programming and web application development. Provides students with essential skills for developing basic client-side and server-side applications. A survey course on the role of computing in society, designed primarily for computer science majors and minors. Discusses current topics related to the use of computing and associated trends.

**CS 280. COMPUTER SCIENCE III. (3)** *Prerequisites:* A grade of "C" or better in CS 181, MATH 119, 122, or 136. Finite and discrete algebraic structures, including Boolean algebras, directed and undirected graphs and the applications of these structures in computer science.

**CS 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** *Prerequisite:* Ogden Research Scholar, or 3.2 grade point average at the end of freshman year, or OCSSTH faculty member recommendation. To familiarize Ogden Research Scholars and other research oriented students, with the fundamentals of choosing a research topic, performing a bibliographical search on a subject, topic, classification of instruments, data taking, data reduction, professional ethics and other research oriented topics. The common points of research methodology in the different scientific areas will be accentuated. Examples will be drawn from the various disciplines. Use of computers will be emphasized. (Course does not count towards any major or minor). Equivalent to BIOL 295, CHEM 295, CS 295, GEOL 295, MATH 295, and PHYS 295.

**CS 315. INTRODUCTION TO UNIX. (3)** *Prerequisite:* CS 181 (co-requisite). Use of the UNIX operating system as a program development environment. Topics include programming tools like debuggers, make, advanced editing, shell programming, and use of the X Window system.

**CS 325. COMPUTER ORGANIZATION AND ARCHITECTURE. (3)** *Prerequisites:* CS 181. Advanced assembly programming, instruction sets, processor I/O and bus protocols, memory management, system performance, parallelism, and advanced systems.

**CS 349. CONSULTING PRACTICUM IN COMPUTER SCIENCE. (1-2)** *Prerequisites:* Junior status, a grade of "C" or better in CS 325, and consent of instructor. An opportunity for undergraduates to utilize computer skills and enhance communication abilities by serving as consultants for lower level students on computer laboratory assignments. Will not count as hours towards the major/minor. May be repeated for up to a total of four hours credit with a maximum of two hours per semester. (One hour of semester credit requires four non-paid hours per week of consulting time in the laboratory.) (Grading: Pass/Fail)

**CS 360. SOFTWARE ENGINEERING I. (3)** *Prerequisite:* A grade of C or better in CS 181. Modern development cycle examined via software engineering: needs assessment, requirements analysis, user interface, design, construction, test, maintenance/enhancement. Current methodologies and tools: data dictionary, data flow diagrams, structured walkthroughs, teams, program management. Case studies involving automated CASE and expert systems.

**CS 369. COOPERATIVE EDUCATION IN COMPUTER SCIENCE. (1-3)** *Prerequisites:* Application for enrollment in cooperative education plan; approval of department head and co-op faculty advisor. Practical experience in a supervised work situation with a cooperating business, industry, social or governmental agency. May be repeated for up to (3) credit in the major or minor.

**CS 370. XML AND WEB PROGRAMMING. (3)** *Prerequisite:* CS 270 and CS 338. A detailed study of tiered web application development. Focus is on developing applications that process and transform XML data and integrate it with databases.

**CS 371. ADVANCED COMPUTATIONAL PROBLEM SOLVING. (3)** *Prerequisite:* CS 180 with a grade of C or better. *Prerequisite or corequisite:* MATH 136. *Special requirement:* Enrollment in the Gatton Academy of Mathematics and Science or Honors Program eligibility at WKU. Problem-solving tools and techniques, with an emphasis on mathematical reasoning, algorithmic techniques, and computational methods. Techniques and tools are applied to (research) areas of interest to enrolled students, in the context of a project involving program design and implementation. The course is taught jointly by mathematics and computer science faculty. Equivalent to MATH 371.

**CS 380. DATA STRUCTURES AND ALGORITHM ANALYSIS. (3)** *Prerequisite:* A grade of "C" or better in CS 280 and STAT 301. Important data structures, algorithms, and their applications, emphasizing algorithm analysis and general algorithmic strategies. Includes balanced search trees, hashing, and priority queues, sorting, and graph algorithms.

**CS 381. INTRODUCTION TO COMPUTER NETWORKS. (3)** *Prerequisite:* CS 280. An introduction to the design and analysis of computer networks and their applications. Including the basics of data communication, network topologies, protocols, routing and switching, naming, and addressing.

**CS 382. PROGRAMMING LANGUAGES. (3)** *Prerequisite:* A grade of "C" or better in CS 181. A study of principles and common features of imperative and functional programming languages. Topics include syntax, semantics, names, binding, type checking, scope, overloading, and data abstraction.

**CS 389. PRACTICUM IN COMPUTER SCIENCE. (1-4)** *Prerequisites:* A grade of "C" or better in CS 225 and consent of computer science department head. Intended primarily for upper level undergraduates who will undertake significant programming projects. Written reports and documentation are required. May be repeated for up to a total of four hours of credit.

**CS 396. INTERMEDIATE SOFTWARE PROJECT. (3)** *Prerequisites:* A grade of "C" or better in CS 251, ENG 307, and either COMM 161 or 145. The course enhances students' abilities to craft software through the development of a significant group project requiring a variety of skills. Topics include simple data analysis and design, group problem solving, human-computer interface design, software project management, security, and quality control. Technical work is complemented by written and oral presentations.

**CS 405. NUMERICAL ANALYSIS I (MATH 405). (3)** *Prerequisites:* MATH 237 or 307 or 310, and a grade of "C" or better in CS 180 or CS 146 or consent of instructor. Roots of equations, linear operators, polynomial approximation and interpolation, numerical differentiation and integration. Computer solutions of problems will be required.

**CS 425. OPERATING SYSTEMS I. (3)** *Prerequisites:* A grade of "C" or better in CS 325 and CS 382. Overview of the concepts/theory that underlay operating systems with emphasis on process management, memory management, scheduling, multiprocessing, etc.

**CS 443. DATABASE MANAGEMENT SYSTEMS. (3)** *Prerequisites:* CS 251 and 280, or permission of instructor. Organization and management of large data files, various database paradigms, database design theory, query optimization, physical database design, database security, distributed databases.

**CS 445. OPERATING SYSTEMS II. (3)** *Prerequisite:* A grade of "C" or better in CS 425. Advanced study of modern operating system theory and practice. Topics include distributed system structures and coordination, distributed file systems, and protection and security.

**CS 446. INTERACTIVE COMPUTER GRAPHICS. (3)** *Prerequisites:* MATH 307, A grade of "C" or better in CS 338. Introduction to elementary topics in interactive computer graphics. Input devices, display devices, and techniques for 2-D and 3-D transformation will be explored as well as difficulties encountered in each of these areas. Assignments will be used to emphasize interaction, data structures, and applications to various disciplines.

**CS 450. COMPUTER NETWORKS. (3)** *Prerequisite:* CS 325 and CS 381, or permission of instructor. An advanced study of the design and implementation of computer networks. Topics include network topologies, switching techniques, routing, end-to-end protocols, quality of service, and other advanced topics, e.g. wireless networks and multimedia networks.

**CS 456. ARTIFICIAL INTELLIGENCE. (3)** *Prerequisites:* A grade of "C" or better in CS 338, 360. Study of problems which have no plausible algorithmic solution. Their computer representations and solutions usually involve heuristics.

**CS 473. INTRODUCTION TO GRAPH THEORY. (3)** *Prerequisite:* MATH 307 and MATH 310 with grades of C or better, or permission of the instructor. Fundamental concepts, key ideas and tools in graph theory, with an emphasis on proof methods, algorithms, and applications. Techniques and tools are applied to practical optimization problems and other areas of mathematics and computer science. Equivalent to MATH 473.

**CS 475. SELECTED TOPICS IN COMPUTER SCIENCE. (1-3)** *Prerequisite:* Permission of instructor. A consideration of special topics which will acquaint the advanced student with significant problems and developments of current interest in computer science.

**CS 476. RESEARCH METHODS AND PROJECTS IN COMPUTER SCIENCE. (3)** *Prerequisite:* A grade of "C" or better in CS 360. The languages, programming techniques and skills acquired in the sequence of core courses in the undergraduate program are applied to the analysis and design of computer-based systems. Top-down design techniques are applied in one or more large-scale programs which require attention to the documentation, communication, and interfacing or modules in a team project. These techniques are essential in most large-scale research applications of computers. May be repeated for 6 hours.

## Course Descriptions

**CS 496. CS SENIOR PROJECT AND PROFESSIONAL PRACTICE. (3)**  
*Prerequisites:* CS 360 and 396. Student teams of qualifying seniors will design and implement complex capstone software projects. Topics include practical issues of software development, quality assurance and deployment, project management, computing ethics, and professional practice.

### DANCE – DANCE DEPARTMENT OF THEATRE AND DANCE

**DANC 108. BEGINNING MEN'S BALLET TECHNIQUE. (2)** Beginning men's ballet technique. Repeatable up to three times for credit. (course fee) [GEN ED F]

**DANC 110. DANCE APPRECIATION. (3)** A general study of the various forms of dance with emphasis on the contributions each has made to the performing arts and the development of our culture. [GEN ED B-II]

**DANC 111. BALLET I. (2)** An introduction to basic techniques of ballet with emphasis on proper techniques, mechanics, differences of the three major systems and terminology. Repeatable up to three times for credit. (course fee) [GEN ED F]

**DANC 112. DANCE FLEXIBILITY/STRENGTH TECHNIQUE. (1)** A study of principals of movement involved in the efficient development of the dancer's body with emphasis on a careful approach that will prevent or minimize common dance injuries.

**DANC 113. JAZZ I. (2)** An introduction to basic techniques of jazz with emphasis on technique, mechanics, rhythmical development and terminology. Repeatable up to three times for credit. [GEN ED F]

**DANC 115. TAP I. (2)** An introduction to the basic techniques of tap with emphasis on technique, mechanics, rhythmical development of styles and terminology. Repeatable up to three times for credit.

**DANC 117. MODERN I. (2)** An introduction to the basic techniques of modern dance with emphasis on technique mechanics and development of the body as a creative tool. Repeatable up to three times for credit. (course fee) [GEN ED F]

**DANC 200. DANCE PEDAGOGY. (3)** Study and practice of teaching methods and skills applicable to the teaching of dance technique.

**DANC 211. BALLET II. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 111, further developing and exploring technique and stylistic elements of ballet. This course also emphasizes assimilation and application of theoretical movement principles and historical influences on ballet. Repeatable up to three times for credit. (course fee) [GEN ED F]

**DANC 212. PARTNERING I. (2)** *Prerequisite:* DANC 211 or permission of instructor. A study in the basic techniques of partnering with emphasis on the techniques and mechanics that apply to support, timing, and concepts of classical partnering.

**DANC 213. JAZZ II. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 113, further developing and exploring technique and styles of jazz dance. This course also emphasizes assimilation and application of theoretical movement principles and historical influences on contemporary jazz dance. Repeatable up to three times for credit. [GEN ED F]

**DANC 215. TAP II. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 115. Repeatable up to three times for credit.

**DANC 217. MODERN II. (2)** *Prerequisite:* Permission of instructor. A study of modern dance technique at the intermediate level with emphasis on elements of time, space, and energy. Repeatable up to three times for credit. (course fee) [GEN ED F]

**DANC 235. DANCE IMPROVISATION. (3)** A guided exploration of dance oriented physical improvisation technique. (course fee)

**DANC 300. DANCE COMPANY. (1)** Prerequisites: By audition only. Must be concurrently enrolled in an appropriate Jazz, Ballet or Modern technique course. Dance performance ensemble. Repeatable 9 times for a total of 10 hours.

**DANC 310. CHOREOGRAPHY I. (3)** *Prerequisite:* DANC 235, or permission of instructor. An introduction to the elements that go into the creative development of dance with emphasis on the isolation of various elements for the purpose of detailed study.

**DANC 311. BALLET III. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 211, further exploring and developing technique and stylistic elements of ballet. This course also emphasizes assimilation and application of theoretical movement principles and historical influences on ballet. Repeatable up to three times for credit. [GEN ED F] (course fee)

**DANC 312. PARTNERING II. (2)** *Prerequisite:* DANC 212. A continuation of DANC 212.

**DANC 313. JAZZ III. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 213, further exploring and developing technique and style of jazz dance. This course also emphasizes assimilation and application of theoretical movement principles and historical influences on contemporary jazz dance. Repeatable up to three times for credit. [GEN ED F]

**DANC 314. STYLES OF MUSICAL THEATRE DANCE I. (2)** *Prerequisite:* DANC 318 or DANC 319, or permission of instructor. Development of basic practical knowledge of choreographed movement in the musical theatre dance idiom; includes study of fundamentals of ballet for the actor, derivative musical/rhythmic forms, and elementary Broadway dance vocabulary and styles.

**DANC 315. TAP III. (2)** *Prerequisite:* Permission of instructor. Intermediate level of tap technique. This course includes the study of wings, cramp-rolls, advanced riffs, time steps, breaks, turns and soft-shoe dancing. Repeatable up to three times for credit.

**DANC 317. MODERN III. (2)** *Prerequisite:* Permission of the instructor. A study of modern dance at the advanced intermediate level, with emphasis on dance composition. Repeatable up to three times for credit. (course fee) [GEN ED F]

**DANC 318. BALLET IV. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 311. Repeatable up to three times for credit. (course fee)

**DANC 319. JAZZ IV. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 313 with emphasis on the technique and artistic development of jazz dance. Repeatable up to three times for credit.

**DANC 320. CHOREOGRAPHY PRODUCTION. (2)** *Prerequisite:* DANC 310 or permission of instructor. Application of compositional elements toward a completed choreography project. Includes work on production in progress.

**DANC 334. POINTE I. (2)** *Prerequisite:* DANC 318. Preparation for and study of techniques applicable to pointe work as a specialized form of classical ballet. Repeatable up to three times for credit. (course fee)

**DANC 336. POINT II. (2)** *Prerequisite:* DANC 334. Second level in the study of technique applicable to pointe work. This course is designed to develop the accuracy and precision for dancing more complicated pointe variations. Repeatable up to three times for credit.

**DANC 350. DANCE HISTORY. (3)** A survey of the historical and aesthetic development of dance as an art form in Europe and America from ancient Greece to contemporary periods.

**DANC 410. DANCE PRACTICUM. (3)** An independent study project that enables the student to do research and special projects in unique areas where the usual course-work does not fulfill the need of the student.

**DANC 411. BALLET V. (2)** *Prerequisite:* Permission of instructor. A study of ballet technique with emphasis on analysis and correction of mechanics and the combining of techniques into dance sequences. Repeatable up to three times for credit. (course fee)

**DANC 413. JAZZ V. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 319 with emphasis on artistic quality, musicality and performance level techniques. Repeatable up to three times for credit.

**DANC 415. TAP IV. (2)** *Prerequisite:* Permission of instructor. Advanced level of tap technique. This course is designed to develop speed, control, precise articulation, rhythmic accuracy and effective dynamics. Elements of tap style, line and performance will be studied. Repeatable up to three times for credit.

**DANC 417. MODERN IV. (2)** *Prerequisite:* Permission of the instructor. A study of modern dance at the advanced level, with emphasis on dance performance. Repeatable up to three times for credit. (course fee)

**DANC 418. BALLET VI. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 411. Repeatable up to three times for credit. (course fee)

**DANC 419. JAZZ VI. (2)** *Prerequisite:* Permission of instructor. An exploration of jazz dance, emphasizing comprehension and development of styles. Repeatable up to three times for credit.

**DANC 420. CHOREOGRAPHY II. (3)** *Prerequisite:* DANC 310. Examines the analytical facet of making and viewing choreography, focusing on theme, meaning, and the artist's creative voice.

**DANC 451. BALLET VII. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 418. Repeatable up to three times for credit. (course fee)

**DANC 453. JAZZ VII. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 419. Repeatable up to three times for credit.

**DANC 458. BALLET VIII. (2)** *Prerequisite:* Permission of instructor. A continuation of DANC 451. Repeatable up to three times for credit. (course fee)



**DANC 459. JAZZ VIII. (2)** *Prerequisite: Permission of instructor.* A continuation of DANC 453. Repeatable up to three times for credit.

**DENG – DEVELOPMENTAL ENGLISH**  
**DEPARTMENT OF ACADEMIC SUPPORT**

**DENG 050. BASIC GRAMMAR AND PUNCTUATION. (3)** A refresher course covering the rules of grammar, punctuation, spelling, and sentence structure. (Grading: Pass/Fail)

**DENG 051C. ENGLISH AS A SECOND LANGUAGE. (3 OR 6)** A course designed to give non-native English speakers intensive practice in the four major language skills: reading, writing, listening, and speaking. Equivalent to ENG 051.

**DENG 055C. FUNDAMENTALS OF COMPOSITION. (3)** Intensive course in the basic mechanics of writing, reading, and grammar, designed to prepare students for college-level work in English. If enrollment is based on ACT and/or ACCUPLACER test scores, then a grade of "C" or better is required for the successful completion of the course.

**DH – DENTAL HYGIENE**  
**DEPARTMENT OF ALLIED HEALTH**

**DH 100. INTRODUCTION TO DENTAL HYGIENE. (1)** *Prerequisites: 226P, 524P majors, or exploratory students.* Exploratory course for pre-dental hygiene majors. This course will expose students interested in dental hygiene to the field and introduce them to the professional role of a dental hygienist. Communication and personal interaction skills will play a significant role during the course. During the course, students will be introduced to the clinic setting and will conduct a personal plaque control program.

**DH 111. PRE-CLINICAL DENTAL HYGIENE. (3)** An orientation to the field of dental hygiene. Subject matter includes the history of dentistry, dental hygiene, professional ethics, professional structure and roles of dental auxiliaries. This course develops an awareness of professional responsibility to preventive services, and to develop knowledge of theoretical principles and purposes of specific oral prophylaxis procedures is also included. The students practice prophylactic techniques on manikin heads. In the final few weeks, they provide limited clinical care to patients.

**DH 112. ORAL ANATOMY. (3)** A study of the visible anatomy of the oral cavity and the underlying structures. The basic concepts of the anatomy of cranial and facial bones, muscles, nerve supply, blood supply and lymphatic drainage of the head and neck is covered. A study of the eruption, arrangement, function and morphological characteristics of both the permanent and deciduous dentition is presented.

**DH 115. INDEPENDENT CLINICAL STUDY. (5-3)** *Prerequisite: Permission of instructor.* Designed to allow students to complete clinical requirements remaining from the previous semester.

**DH 121. CLINICAL DENTAL HYGIENE. (3)** *Prerequisites: DH 111, 112 and 201.* Emphasis is given to the clinical aspects of training. Lectures concentrate on dental patients with special needs such as diseases, pregnancy or physical handicaps and techniques used in the clinical performance of periodontal probing and root instrumentation. The student is taught to counsel patients in all phases of preventive dentistry and nutrition.

**DH 122. PREVENTIVE DENTAL HYGIENE CARE. (1)** *Corequisite: DH 111.* Basic concepts of health promotion and oral disease prevention. Communication and behavior modification skills are presented to facilitate the role of the dental hygienist as an educator.

**DH 130. ORAL HISTOLOGY AND EMBRYOLOGY. (3)** *Prerequisite: DH 112.* This course covers the development and growth of the face and oral cavity, including a detailed study in the development of the teeth and their supporting structures. An abbreviated study of General Histology and Embryology and a microscopic study of the primary human tissues precedes the study of Oral Histology, including a detailed study of the tissues of the teeth and surrounding structures.

**DH 201. DENTAL RADIOLOGY I. (2)** This course explores dental radiology starting with fundamental physics. Material covered includes intraoral techniques, the darkroom, patient positioning, radiation hazards and protection.

**DH 204. PERIODONTICS. (3)** The role of the dental hygienist in the prevention and treatment of periodontal disease is stressed in this course. A study of the macroscopic and microscopic characteristics of the normal periodontium is presented to facilitate the recognition of changes in the gingiva and supporting tissues produced by periodontal pathology. The epidemiology, classification, etiology and prevention of periodontal disease will be covered. Clinical determinations in patient examination and the objectives and techniques in periodontal therapy will be emphasized.

**DH 206. DENTAL PHARMACOLOGY. (3)** *Prerequisites: CHEM 109 and BIOL 131.* Emphasis in this course is given to drugs that the dental professional actively prescribes in the practice of dentistry. All major drug groups, management of dental and medical emergencies from a pharmacological standpoint and pain control are included.

**DH 210. DENTAL MATERIALS AND EXPANDED FUNCTIONS IN RESTORATIVE DENTISTRY I. (2)** The first of two courses designed to introduce the student to dental materials and to the basic concepts of operative dentistry and the dental specialties, including the implementation of expanded functions. The course will include a study of the characteristics, physical and chemical properties, manipulation, uses and care of dental materials used in the practice of dentistry. A proficiency level will be acquired through laboratory and clinical experiences.

**DH 211. CLINICAL DENTAL HYGIENE. (4)** *Prerequisite: DH 121.* A clinical course closely correlated with oral diagnosis and oral pathology. Clinical activities include application of prophylactic technique to adult and pediatric patients. Oral examination and charting, sodium fluoride application, X-ray exposure, development, interpretative application, and patient education and sterilization techniques are carried out. The principal goal of this course is to develop the dental hygiene student into an adept, skilled, self-directing clinician. Off-campus field experiences are required.

**DH 213. EXTERNSHIP IN DENTAL HYGIENE. (3)** *Prerequisites: DH 121, DH 210, DH 226.* A four-week off-campus course at a selected site where all specialties of dentistry are practiced. Students are required to participate and rotate through all specialties. Emphasis is given to expanded functions in dentistry. Students are supervised by a Western Kentucky University faculty member as well as an on-site practitioner.

**DH 226. DENTAL MATERIALS AND EXPANDED FUNCTIONS IN RESTORATIVE DENTISTRY II. (2)** *Prerequisite: DH 210.* The second of two courses covering the utilization of the dental hygienist in expanded functions in operative dentistry. The more advanced concepts and procedures in restorative dentistry will be used to reinforce and expand the previously learned skills. Topics covered include impressions, rubber dam placement and removal, temporary restorations, placement of bases and cavity liners, placement and finishing of amalgam and tooth colored materials and other expanded functions.

**DH 302. DENTAL RADIOLOGY II. (2)** *Prerequisite: DH 201.* This second course in radiology is designed to discuss advanced techniques in radiography including extraoral techniques and continue to develop technical skills that result in radiographs of interpretive quality. Emphasis is placed on identification of normal anatomy and abnormal findings. Radiographic manifestations of dental diseases are taught.

**DH 303. COMMUNITY DENTAL HEALTH. (4)** *Prerequisite: DH 121.* Community dental health is that portion of the dental hygiene curriculum that prepares students to promote oral health and prevent oral disease in a community. The approach taken within the course provides students with the knowledge and skills necessary to meet specific oral health needs of community groups as distinct from the traditional clinical approach that is designed to meet the needs of individual patients. Instructional methods for individual and group presentations are developed and implemented through extramural experiences.

**DH 304. ADVANCED PERIODONTOLOGY. (4)** *Prerequisite: Open only to matriculated dental hygiene students or registered dental hygienists who have completed all attempted dental hygiene program courses with a grade of "C" or better.* This course is designed to provide the dental hygiene student or dental hygienist with advanced knowledge in periodontics. It will provide students with the conceptual framework and clinical skills to treat periodontal infections.

**DH 307. GENERAL AND ORAL PATHOLOGY. (3)** This course will be devoted to oral and general pathological conditions of the head and neck. This course encompasses an abbreviated coverage of general pathology to prepare the student for clinical diagnostic procedures in oral pathology, oral medicine, and radiology. The biology of the basic pathologic processes and how these processes produce diseases will be presented. Diseases that require special attention or require alterations in normal dental treatment planning will be emphasized.

**DH 309. PAIN CONTROL IN DENTISTRY. (4)** *Prerequisites: DH 206, DH 121.* This course is designed to prepare the dental hygiene student to administer local anesthesia and nitrous oxide/oxygen sedation at a clinical level of competency. Students will study and perform various local anesthetic injection techniques, and will administer nitrous oxide and oxygen to achieve conscious sedation. Students will also study the pharmacology of nitrous oxide and local anesthetic agents.

## Course Descriptions

**DH 321. CLINICAL DENTAL HYGIENE. (5)** *Prerequisite: DH 211.* Students are required to perform a specified number of oral prophylaxes on adult patients, patients presenting with special needs, and patients who are medically compromised. Students will also take, process and review dental radiographs and accomplish every clinical procedure that a licensed dental hygienist is expected to provide. Emphasis is also placed on periodontal management of patients.

**DH 323. RESEARCH METHODS. (3)** *Prerequisites: DH 303, DH 211, CH 383 or permission of instructor.* This course involves study of the research process and its application to dental hygiene education and practice. Emphasis is placed on critical analysis of selected research in dental hygiene and dentistry, including theory of research design, bibliographical and data gathering technique, and interpretation of results.

**DH 324. PRACTICE MANAGEMENT AND ETHICS. (2)** A course that covers the major aspects of the management of a growing dental and dental hygiene practice in today's society including location, equipment, insurance plans, ethics and jurisprudence. The course also discusses selecting a practice setting and the process of securing employment.

**DH 330. CLINICAL TEACHING I. (4)** *Prerequisites: DH 321 and FACS 381. Additional special requirements: Current Kentucky Dental Hygiene License.* Integration of previous knowledge and concepts in the supervision of first year dental hygiene students in the pre-clinical and laboratory setting.

**DH 340. CLINICAL TEACHING II. (4)** *Prerequisite: DH 330. Corequisite: DH 350.* Integration of previous knowledge and concepts in the supervision of first year dental hygiene students in the laboratory and clinical setting.

**DH 350. CLINICAL TEACHING III. (4)** *Prerequisite: DH 330. Corequisite: DH 340.* Clinical teaching experience in classroom areas as selected by the student under the direction of a supervising professor. The student develops behavioral course objectives, test and examination items, classroom teaching areas. The student may select teaching assignments in one of the developed externship student teaching programs. Conferences will be held in conjunction with the course.

**DH 360. INTERNATIONAL HEALTH AND HUMAN SERVICES LEARNING PROGRAM. (3)** *Prerequisites: DH 111, 210 and permission of instructor.* The purpose of this study abroad/service-learning course is to enhance student learning through the integration of academic and co-curricular experiences. This will be accomplished with active service to community partners, while encouraging civic engagement, community awareness, interdisciplinary teamwork and personal leadership development. Course may be repeated one time for a maximum of six credit hours.

### DMA – DEVELOPMENTAL MATHEMATICS DEPARTMENT OF ACADEMIC SUPPORT

**DMA 050C. PRE-ALGEBRA. (3)** For students whose arithmetic and basic algebra skills are inadequate for college mathematics. Topics include integers, fractions, decimals, percents and basic algebra concepts.

**DMA 055C. BASIC ALGEBRA SKILLS (PRE-COLLEGE). (3)** Designed to assist students whose background in algebra is inadequate for success in Intermediate Algebra (DMA 096C) or for those who did not take Algebra I in high school.

**DMA 080C. BASIC GEOMETRY. (3)** A one-semester course for students who did not complete geometry in high school. The course includes definitions, postulates, theorems, and proofs and topics from Euclidean geometry.

**DMA 096C. INTERMEDIATE ALGEBRA. (4)** *Prerequisite: Satisfactory score on ACCUPLACER test or Math Placement Exam; or completion of DMA 055C with a grade of "C" or better.* For those students needing algebra who do not have the prerequisite for MATH 116 or Math 118. Topics include functions, graphs, and fundamental concepts of algebra. Credit for DMA 096C is not applicable toward a baccalaureate or associate degree.

### DMT – DESIGN, MERCHANDISING AND TEXTILES DEPARTMENT OF FAMILY AND CONSUMER SCIENCES

**DMT 100. INTRODUCTION TO HOUSING AND INTERIOR DESIGN. (3)** Introduction to interior design as it relates to housing environments and residential furnishings and equipment. Focuses on consumer-related information and services. Includes layout and design opportunities. This course for non-Interior Design majors only.

**DMT 110. DESIGN CONCEPTS. (3)** Study of design elements and principles as related to the natural and manufactured environments. Students will develop an understanding of and appreciation for the role of design in human activity and thought.

**DMT 120. DESIGN STUDIO I. (4)** *Prerequisite: DMT 110.* Introduction to the fundamentals of visual design and techniques of representation through exploration of the fundamentals of design, research and conceptual sketching.

**DMT 131. BASIC APPAREL CONSTRUCTION. (3)** Study of basic principles of apparel construction. Concepts include pattern, fabric, and equipment selection. Students experiment with construction techniques. Laboratory. (course fee)

**DMT 132. PERSPECTIVES OF DRESS. (3)** An introduction to the fashion industry and the motivational factors influencing clothing choices. Dress is considered from psychological, socioeconomic, and design perspectives.

**DMT 151. INTRODUCTION TO HISTORY OF ARCHITECTURE AND INTERIOR DESIGN I. (3)** An introduction to the study of styles in architecture and interiors from ancient times through the 18th century. Emphasis is placed on furniture and furnishings and the interface between architecture and interior space.

**DMT 152. INTRODUCTION TO HISTORY OF ARCHITECTURE AND INTERIOR DESIGN II. (3)** An introduction to the study of styles in architecture and interiors from the 18th century to present time. Emphasis is placed on French, English, and American styles and the international movements from which contemporary styles have emerged.

**DMT 201. DESIGN STUDIO II. (4)** *Prerequisites: DMT 110, 120. Corequisites: DMT 243 and portfolio review for advising strengths and weaknesses.* Study of the principles of spatial design expressed by two-and-three-dimensional representation. Problem solving through elements of form, space and color.

**DMT 221. CREATIVE PROBLEM SOLVING IN DESIGN & MERCHANDISING. (3)** Development of problem solving skills in design and merchandising under time and/or environmental constraints. Students will complete projects using right brain-left brain thinking skills to analyze problems and create solutions.

**DMT 222. CAD IN HUMAN ENVIRONMENT. (3)** *Prerequisites: DMT 201 (may be taken concurrently) for Interior Design majors; DMT 131 for Textiles and Apparel Merchandising majors.* Computer aided design and drafting using AutoCAD. Practical applications in interior design and apparel merchandising are addressed through projects.

**DMT 223. TEXTILES. (3)** Includes fundamental facts concerning fibers, yarn, and fabric construction; color and design; and finishes. Performance and care are studied in relation to selection of fabrics for clothing and furnishings. Laboratory and field trips at student's expense included.

**DMT 226. FASHION ILLUSTRATION. (3)** *Prerequisites: DMT 110 and 132, or permission of the instructor.* Survey of industry methods for communicating design concepts and presenting finished products. Emphasis is on application of basic sketching and rendering skills for use in the fashion industry.

**DMT 231. TEXTILE AND APPAREL QUALITY ANALYSIS. (3)** *Prerequisites: DMT 131 (or demonstrated proficiency), DMT 223.* Evaluation of textile and apparel quality and performance. Emphasis on sewn products from the perspective of the manufacturer, retailer, and consumer. Laboratory; field experiences.

**DMT 243. MATERIALS AND FINISHES FOR INTERIOR DESIGN. (3)** *Prerequisite: DMT 120 or permission of instructor. Corequisite: DMT 201.* Analysis of properties and uses of materials specified by interior designers. Major concepts and processes include standards of performance, quantity and cost estimating, and specification writing. Field trips at student's expense.

**DMT 244. DIGITAL DESIGN TOOLS. (3)** *Prerequisite: DMT 120 or permission of instructor.* Introduction to the use of computer software such as Photoshop Elements, Snap Fashion, Sketch-up and AutoCAD for the visual communication of design ideas.

**DMT 300. DESIGN STUDIO III. (4)** *Prerequisite: DMT 201, 243. Corequisite: AMS 163.* Investigation into understanding of conceptual, spatial principles applicable to interior design; development of two- and three-dimensional representation techniques and application of color theory.

**DMT 301. DESIGN STUDIO IV. (4)** *Prerequisite: DMT 202. Corequisite: DMT 303.* Integration of basic building systems with conceptual, organizational, and spatial principles of design to create complete interior environments. (course fee)

**DMT 302. DESIGN STUDIO V. (4)** *Prerequisite: DMT 301.* Non-residential design problems of intermediate complexity with emphasis on application of advanced programming and life safety issues. (course fee)

**DMT 303. LIGHTING DESIGN SEMINAR. (2)** *Corequisite: DMT 301.* A study of the principles of lighting that relate to technical, aesthetic, and economic aspects of user needs. Emphasis is on analysis of quantitative standards (safety and function) and quality of light in various types of spaces. Integrated with studio work. Field trips at student's expense.

**DMT 304. LIGHTING AND ENVIRONMENTAL CONTROLS. (3)** *Corequisite: DMT 301.* Principles of mechanical systems of buildings including the electrical system, ventilation system, plumbing system, HVAC systems. Students will properly execute the design criteria, supervise and collaborate with building trades and competently implement proper materials and mechanical systems in the working drawings.

**DMT 321. PROFESSIONAL ETHICS & ISSUES SEMINAR. (3)** *Prerequisite: Junior Standing.* Interdisciplinary study of social trends, professional issues, and professional ethics impacting careers. Focus is on professional development strategies and resolution of ethical dilemmas both in the job search and within the workplace.

**DMT 322. MERCHANDISING I FOR DESIGN, MERCHANDISING AND TEXTILES. (3)** Study of the principles of merchandising design, apparel and textile products with emphasis on the buying function and using merchandise calculations.

**DMT 332. HISTORY OF 20TH CENTURY FASHION. (3)** *Prerequisite: DMT 132.* Survey of American and European fashions from 1900 to present as they reflect social, economic, and cultural influences. Application to current fashion analysis, re-enactment apparel, and artifact identification.

**DMT 333. FASHION FUNDAMENTALS. (3)** *Prerequisite: DMT 132 or consent of instructor.* Survey of the fashion industry. Major topics include design, production, marketing and apparel management. Current trends in fashion design and merchandising are identified and analyzed.

**DMT 334. APPAREL DESIGN MANAGEMENT. (3)** *Prerequisite: DMT 131.* Study of basic principles of flat pattern design. Students are required to interpret and develop original designs. Laboratory. (course fee)

**DMT 346. ARCHITECTURE AND CULTURE. (3)** *Prerequisite: Honors participation or 3.2 gpa required.* The study of architecture as an integral component of world culture. Attention is focused on the interdisciplinary nature of architecture, its development as a reflection of beliefs, and its use as a setting for interaction and cultural ritual. [GEN ED-E]

**DMT 401. DESIGN STUDIO VI. (4)** *Prerequisites: DMT 302. Corequisite: DMT 403.* Non-residential design problems of advanced complexity integrating previous experiences and applying office practices to the process of design. (course fee)

**DMT 402. SENIOR DESIGN THESIS. (4)** *Prerequisites: DMT 401, 403, FACS 410.* A mixed-use capstone project which requires students to develop a design solution with an increased amount of technical support data and design detailing. Guest speakers and field trips may supplement instruction. Students are responsible for their own transportation. (course fee)

**DMT 403. BUSINESS PRINCIPLES AND PRACTICES FOR INTERIOR DESIGN. (2)** *Corequisite: DMT 401.* Study of the business, legal, and financial considerations of the practicing designer. Major topics include business formation, project analysis and management, contracts, compensation, and government regulations and codes.

**DMT 410. INTERNSHIP FOR DESIGN, MERCHANDISING AND TEXTILES. (3)** *Prerequisite: Senior standing and all required 300-level courses in DMT.* Students perform professional functions in an appropriate establishment. (Note: application and copy of undergraduate program must be submitted to coordinator of the Internship Program one complete semester prior to the semester a student plans to do the internship. A 2.5 grade point average in professional courses is required for eligibility.) Repeatable to maximum of 6 hours.

**DMT 421. PORTFOLIO DESIGN. (3)** *Prerequisites: DMT 302 and 303 or DMT 333 and 334 or permission of instructor.* Development of a design portfolio as essential ingredient of job search and application to graduate school for all design professions. Includes audit, analysis and assembly of portfolio to demonstrate individual talent and qualifications. Input from industry professionals. Covers digital techniques and World Wide Web promotion.

**DMT 422. TEXTILE DESIGN AND PERFORMANCE. (3)** *Prerequisites: DMT 110 and 221.* Analysis of creativity in historic and contemporary textile designs and techniques. Students experiment and create textile designs and colorways appropriate for specific design applications and end product categories. (course fee)

**DMT 423. HUMAN ENVIRONMENT STUDY TOUR. (3)** *Prerequisite: Consent of instructor.* Travel to fashion and design centers to gain firsthand knowledge concerning design, production, marketing, and promotion of textiles, clothing, and home furnishings. Field trips at student's expense.

**DMT 424. HISTORIC TEXTILES. (3)** *Prerequisite: DMT 223.* A study of decorative fabrics and the history of textile design from ancient times through contemporary production. Understanding cultural diversity as reflected in textile artifacts of major cultures of the world is the major focus. Field trips required at student's expense.

**DMT 426. FASHION DESIGN MARKET TRENDS. (3)** *Prerequisites: Student must have completed at least two courses in DMT, have junior or senior standing, and approval of instructor.* Study of a major market for fashion apparel, textiles, or interior design products. In-class seminars will precede and follow field work experience at a major market for apparel, interior design, or related businesses. Travel to market site at student's expense.

**DMT 427. ADVANCED PRESENTATION TECHNOLOGY. (3)** *Prerequisite: DMT 300.* Exploration of computer technology used to enhance the interior design presentation process.

**DMT 431. CLOTHING AND HUMAN BEHAVIOR. (3)** *Prerequisites: PSY 100 or SOCL 100 and junior standing or consent of instructor.* Study of dress and adornment in relation to human behavior. Clothing and appearance are explored in relation to the self, to interpersonal communication, and to collective behavior in social, cultural, and historical contexts. [GEN ED-E]

**DMT 432. VISUAL MERCHANDISING AND PROMOTION. (3)** *Prerequisites: DMT 110 and DMT 132.* Study of the principles and practices of fashion promotion. Includes supervised experience working with visual merchandising and fashion-related events using merchandise from retail stores.

**DMT 433. FASHION SYNTHESIS. (3)** *Prerequisites: DMT 333 and DMT 334.* A multi-functional team approach to creative problem solving and development of apparel and related products and services. Includes application, evaluation, presentation, and synthesis of merchandising, design, and production processes. Laboratory and field trips. (course fee)

**DMT 434. HISTORY OF COSTUME. (3)** Study of costume from selected historic periods. Students are required to analyze socioeconomic influences on clothing. Field experiences.

**DMT 435. COMPUTER APPLICATIONS IN TEXTILES AND APPAREL MERCHANDISING. (3)** *Prerequisites: DMT 222, DMT 331, and DMT 333.* Study of fundamental principles of textiles and apparel management. Experience with a variety of computer applications in the textiles and apparel industry. Field trips.

**DMT 437. CONSERVATION OF TEXTILES AND CLOTHING. (3)** *Prerequisite: DMT 223.* Comprehensive study of preservation techniques employed for the conservation of textile and clothing artifacts, including consideration of cleaning, repairing, storing, mounting, and displaying procedures. Techniques applicable in both home and museum locations are addressed.

**DMT 438. MERCHANDISING II FOR DESIGN, MERCHANDISING AND TEXTILES. (3)** *Prerequisite: DMT 331.* Study of the principles of effective fashion merchandising. Students apply learning experiences to store design and layout, management patterns, fashion promotion, and financial control.

**DMT 441. BUSINESS PRINCIPLES AND PRACTICES IN INTERIOR DESIGN. (3)** *Prerequisites: All required 200-level courses in the major. Permission of instructor.* Study of the business, legal, and financial considerations of the practicing designer. Major topics include business formation, project analysis and management, contacts, compensation, and government regulations and codes.

**DMT 444. ENVIRONMENTAL PRODUCT DESIGN AND DEVELOPMENT. (3)** *Prerequisite: DMT 241.* A study of emerging technologies and environmental issues confronting consumers and designers of the near environment, including housing, apparel, leisure, and workspaces. Major emphasis is on alternative design forms, energy-conscious design, and energy effectiveness of products and spaces. Possible field trips at student's expense.

**DMT 446. RESTORATION OF HISTORIC INTERIORS. (3)** This course focuses on design and other aspects of interior historic restoration of both academic and vernacular structures. Attention is focused on aesthetic issues of designing domestic and commercial historic interiors for restoration or adaptive reuse. (Equivalent to FLK 446)

**DMT 448. INTERIOR ILLUSTRATION. (3)** *Prerequisite: DMT 120.* Development of advanced skills in design illustration and presentation. Emphasis is on fast techniques for color rendering.

**DMT 449. DESIGN HUMANICS. (4)** *Prerequisites: DMT 300, AMS 163, or DMT 222.* Research and application of design theory to a design project. Student will prepare design documents from conceptual diagrams, preliminary design, and code analysis to final presentation.

#### DPE – DEVELOPMENTAL PHYSICAL EDUCATION DEPARTMENT OF ACADEMIC SUPPORT

**DPE 052C. WELLNESS: USING BODY RECALL. (1)** An alternative to aerobic exercise, the course is designed to improve flexibility, strength, and muscle tone through slow and gentle movement. Body Recall is a concept for lifetime fitness and can be used as conditioning for more strenuous activities or as a full body awareness program. Offered to men and women of all ages. No special clothing needed.



## Course Descriptions

### DRDG – DEVELOPMENTAL READING DEPARTMENT OF ACADEMIC SUPPORT

**DRDG 080C. COLLEGE READING STRATEGIES. (3)** Preparation for reading at the college level. Emphasis is given to vocabulary recognition, comprehension, inference, and differentiation of reading requirements as related to different courses. If enrollment is based on ACT and/or ACCUPLACER scores, a grade of "C" or better is required for the successful completion of the course.

**DRDG 090C. COLLEGE STUDY SKILLS. (2)** Emphasizes the development and application of study techniques, including time management, studying from the textbook, note-taking, and examinations.

**DRDG 098C. VOCABULARY DEVELOPMENT STRATEGIES. (3)** This course involves word analysis through examination of word parts, derivatives, definition and usage, with emphasis given to development of basic decoding skills pertaining to college-level, technical terms found across the curriculum.

### ECON / ECO – ECONOMICS DEPARTMENT OF ECONOMICS (ECON) DEPARTMENT OF LIBERAL ARTS AND SCIENCES (ECO)

**ECON 150 / ECO 150C. INTRODUCTION TO ECONOMICS. (3)** A general introduction to economic concepts, ideas, institutions and methods of analysis with emphasis on the description of economic processes and the functioning of institutions in a market economy. This course carries no credit toward any major or minor offered in the Ford College of Business. Note: This course cannot be taken for credit after completing ECON 202 or 203. [GEN ED C]

**ECON 202 / ECO 202C. PRINCIPLES OF ECONOMICS (MICRO). (3)**  
*Prerequisite: Sophomore standing.* An introduction to basic descriptive, analytical and policy problems at the microeconomic level. The economic problems resulting from the disparity between human wants and the resources required to satisfy those wants will be studied with emphasis placed on the derivation and behavior of supply and demand functions and the role of prices in the allocation of scarce resources. [GEN ED C]

**ECON 203 / ECO 203C. PRINCIPLES OF ECONOMICS (MACRO). (3)**  
*Prerequisite: Sophomore standing.* An introduction to basic macroeconomics dealing with descriptive, analytical and policy problems involved in the determination of aggregate income, employment and the price level. Areas of emphasis include money and banking, national income accounting and income-expenditure models. [GEN ED C]

**ECON 206 / ECO 206C. STATISTICS. (3)** *Prerequisites: ECON 202 or 203 and MATH 116 or higher.* An introduction to basic probability and statistics for business and economics. Topics include the collection and presentation of data, descriptive statistics, an introduction to probability and probability distributions, statistical inference, and simple linear regression.

**ECON 300. MONEY AND BANKING. (3)** *Prerequisites: ECON 202 and 203.* An introduction to the functioning of depository institutions and the theory of money. Emphasis is placed on an analysis of the role of money in a global market economy, and the influence exerted by financial institutions and the Federal Reserve System.

**ECON 302. MICROECONOMIC THEORY. (3)** *Prerequisites: ECON 202, 203, and 206.* An intermediate theory course analyzing price determination, output distribution, and resource allocation in a market economy. Topics included are consumer behavior, production theory, market structures and their respective efficiency criteria.

**ECON 303. MACROECONOMIC THEORY. (3)** *Prerequisites: ECON 202, 203, and 206.* An intermediate theory course analyzing Neo-Classical, Keynesian and Post-Keynesian theories of macroeconomic equilibria. The policy implications of these models with respect to income, output, employment and the price level will be emphasized.

**ECON 305. LABOR ECONOMICS. (3)** *Prerequisites: ECON 202 and 203.* Study of modern labor theory and labor market behavior; public policy and implications of policy with topics such as migration, health, wage determination, education, unions, and discrimination.

**ECON 306. STATISTICAL ANALYSIS. (3)** *Prerequisite: ECON 206; NOTE: ECON 306 and ECON 307 may not both be taken for credit.* An introduction to, and, foundations for using techniques involved in estimating and testing relationships between variables. The course includes advanced topics in hypothesis testing, analysis of variance, multiple regression and correlation analysis and experimental design.

**ECON 307. FINANCIAL DATA MODELING. (3)** *Prerequisite: ECON 206. NOTE: ECON 306 and ECON 307 may not both be taken for credit.* Tools for modeling financial data for use in decision making. Using spreadsheet software for exploratory data analysis, financial analysis, multiple regression methods, introduction to forecasting time series. (course fee)

**ECON 323. SPORTS ECONOMICS. (3)** *Prerequisite: ECON 202.* Applies to basic economic principles to the analysis of professional and amateur sports. Topics covered include fan demand, public finance, team output decisions, league/conference organization, and government and sports. This course is designed to cater to Economics, Sport Management, and Business Administration.

**ECON 365. ECONOMICS OF AGING. (3)** *Prerequisites: ECON 150 or 202 or 203.* A course designed to make students familiar with major issues concerning the economic status and roles of older people in the United States.

**ECON 375. MORAL ISSUES OF CAPITALISM. (3)** *Prerequisite: ECON 202 or 203, or consent of the instructor.* Survey course designed to study the moral issues and consequences of current and changing government policies regarding the operation of markets.

**ECON 380. INTERNATIONAL ECONOMICS. (3)** *Prerequisites: ECON 202 and 203.* Introduction to the theory of international trade and monetary relations with emphasis on the determinants of the direction, volume, terms and gains from international trade.

**ECON 385. ECONOMIC DEVELOPMENT. (3)** *Prerequisites: ECON 202 and 203.* This is a survey course designed to appeal to students interested in interdisciplinary study. Market and non-market based strategies for economic development are studied with an emphasis on case studies of the experiences of countries in Europe, Asia, Africa, and the Americas. Attention is given to the roles of domestic and international institutions, economic and political freedoms, culture, legal systems, tradition, and global issues of sustainable development.

**ECON 386. ECONOMIES IN TRANSITION. (3)** *Prerequisites: ECON 202 and 203.* This is a survey course designed to appeal to students interested in interdisciplinary study. Examined are the experiences of the economies of Europe, Asia, Africa, and the Americas in transition from a non-market based economy to one in which private market processes are the primary governors of resource allocation and distributive outcomes. Attention is given to the topics of economic stability, privatization, property rights, international trade policy, industrial policy, economic planning, international institutions, and cultural traditions.

**ECON 390. ECONOMICS, LAW, AND PUBLIC CHOICE. (3)** *Prerequisites: ECON 302 or ECON 202 with consent of instructor.* Presents basic economic issues and analysis related to topics such as property rights, contracts, torts, crime, voter/interest group activity, legislative output, and bureaucratic output.

**ECON 400. ISSUES IN CAPITAL MARKET ECONOMICS. (3)** Exposure to current economic theory and evidence related to capital markets with emphasis on public policy, the interplay with the macroeconomy, stock price variability, internationalization, and other related topics.

**ECON 410. SEMINAR IN ECONOMICS. (3)** Special topics in economics of current interest. Class format varies with instructor.

**ECON 414. MANAGERIAL ECONOMICS. (3)** *Prerequisites: ECON 202, 203, and 206.* The application of economic principles and tools of analysis to business management decision making in areas of demand, pricing, cost, production and investment. Problems in business decision making are treated in terms of short-run adjustment as well as long-run expansion.

**ECON 420. PUBLIC FINANCE. (3)** *Prerequisite: ECON 202 and 203, or consent of instructor.* A study of the economics of government's spending and taxation. Among the topics covered are government's role in promoting widely accepted economic policy objectives; budgeting and benefit/cost analysis; effects and incidence of major taxes used in the U.S.; and issues in fiscal-federalism.

**ECON 430. ENVIRONMENTAL AND RESOURCE ECONOMICS. (3)** *Prerequisite: ECON 150 or 202 or 203.* A study of environmental issues and natural resource problems and alternative solutions to them. Topics include measurements of environmental benefits, property rights and externalities, environmental quality, pollution control and solid waste management, exhaustible and renewable resources, optimal environmental policy and regulation.

**ECON 434. THE ECONOMICS OF POVERTY AND DISCRIMINATION. (3)** *Prerequisite: ECON 150 or 202 or 203.* A study of the economic nature, origins, and public policy aimed at addressing poverty and discrimination in the economy. Topics include social security, food stamps, equal employment opportunity legislation, and other public policies designed to reduce poverty and discrimination.

**ECON 440. AMERICAN INDUSTRY: STRUCTURE, PERFORMANCE AND POLICY. (3)** *Prerequisites: ECON 202, 203, and 206.* A course in applied price theory in which the structure, behavior and performance of American industry is evaluated in the light of public and private social goals. Public policy toward the promotion of competition and the control of monopoly will be examined.

**ECON 445. ECONOMICS OF HEALTHCARE. (3)** *Prerequisite: ECON 202.* Health economics studies the unique role that healthcare systems play in the broader area of microeconomics.

**ECON 460. BUSINESS AND ECONOMIC FLUCTUATIONS. (3)** *Prerequisites: ECON 206 and 303.* A study of the causes, patterns of development and consequences of economic fluctuations in a modern industrialized economy. Emphasis is placed on macroeconomic techniques of cycle analysis to determine the dynamic time path of income, output and employment.

**ECON 464. INTRODUCTION TO MATHEMATICAL ECONOMICS. (3)** *Prerequisites: ECON 302 and 303.* The application of mathematics to economic analysis, covering algebraic and functional relationships, differential and integral calculus, differential and difference equations, matrix algebra, linear programming and game theory.

**ECON 465. REGRESSION AND ECONOMETRIC ANALYSIS. (3)** *Prerequisite: ECON 206.* Presents the use of statistical methods in measuring and testing economic relationships. Emphasizes the use of ordinary least squares in estimating single equation models. Topics included are dummy variables, lagged variables and such problems as autocorrelation, heteroscedasticity, multicollinearity and identification.

**ECON 467. AMERICAN ECONOMIC HISTORY. (3)** *Prerequisites: ECON 202 and 203.* A study of American economic history from Jamestown to the 21st Century. Topics include the economics of slavery, the Civil War, the Robber Barons, the Great Depression, and the growth of government intervention.

**ECON 475. URBAN AND REGIONAL ECONOMICS. (3)** *Prerequisites: ECON 202, 203, and 206 or consent of instructor.* Considers the fundamental economic relationships within and between economic and political units in the United States. Emphasis is on applied economic analysis dealing with the characteristics of a region, the urban center and employment.

**ECON 480. ECONOMIC FORECASTING. (3)** *Prerequisites: MATH 116 or higher, and ECON 202, 203, and 206.* A survey of forecasting methods, their characteristics, appropriate applications, and evaluation.

**ECON 490. PRACTICUM IN ECONOMICS. (1-3)** *Prerequisites: Junior standing, 2.5 cumulative GPA, permission of the economics department head and the instructor, completion of at least 12 hours in economics.* Internships, independent studies, and special projects of interest to students and faculty in the economics discipline. These may include individual research projects approved by the department head and supervised by a member of the economics faculty, meaningful internships in profit or not-for-profit organizations, or other special projects approved by the economics department head, and the economics faculty.

**ECON 491. HISTORY OF ECONOMIC THOUGHT. (3)** *Prerequisites: ECON 202 and 203 or consent of instructor.* The origin and development of economic thought with emphasis on the contribution of political economy to the behavioral sciences.

**ECON 496. INTERNATIONAL MONETARY ECONOMICS. (3)** *Prerequisite: ECON 380.* Deals in a systematic fashion with the monetary aspects of international trade and finance. Topics covered include various models of the current account such as elasticities, and absorption. Models of the capital account include the monetary and asset approaches to the balance of payments and rational expectations models of exchange rate overshooting. Problems of international capital movements and policies to maintain internal and external balance are addressed.

**ECON 497. SENIOR SEMINAR IN MATHEMATICAL ECONOMICS. (1)** *Prerequisite or corequisite: Senior standing and admitted to the major in mathematical economics.* This course is designed to integrate the ideas and techniques students have encountered in their work in mathematics and economics. Students will study research articles and/or undertake independent investigations in mathematical economics. Equivalent to MATH 497.

**ECON 499. SENIOR ASSESSMENT. (1)** *Prerequisites: Senior standing, ECON 302 and 303.* A capstone course that provides an opportunity to demonstrate knowledge of economics and discuss educational and career opportunities beyond the baccalaureate degree.

## EDU – EDUCATION SCHOOL OF TEACHER EDUCATION

**EDU 175. UNIVERSITY EXPERIENCE. (3)** *Prerequisite: For beginning college freshman or transfer students with fewer than 24 semester hours of credit.* Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, degree programs, campus resources, and personal development. Special attention is given to educational requirements, careers, and resources in the field of education. Field trips to local public schools and/or other appropriate settings away from campus are required. Students are responsible for their own transportation to designated or assigned sites.

**EDU 250. INTRODUCTION TO TEACHER EDUCATION. (3)** The introductory course to a career in education. The student will acquire basic knowledge of teacher ethics, career awareness, student diversity, and curriculum. Field experiences are required. Students are responsible for arranging their own transportation to designated or assigned sites.

**EDU 400. INVESTIGATIONS IN EDUCATION. (1-3)** Individual investigations of methods and materials, curriculum problems, or other topics related to professional education.

**EDU 489. STUDENT TEACHING SEMINAR. (3)** *Corequisites: ELED 490, MGE 490, SEC 490, or IECE 490.* Analyzes the connection between teaching theory and actual practice. Portfolio refinement with the Teacher Performance Standards will be emphasized. Field experiences in public schools and/or other appropriate settings away from campus are required. Pre-Service Teachers are responsible for their own transportation to designated or assigned sites.

**EDU 491. PRACTICUM FOR TEACHER CANDIDATES. (1)** *Prerequisite: Department head recommendation; instructor permission.* Development of knowledge and skills required of teacher candidates. Identified students must take EDU 491 in the term (Winter or May) immediately following the student teaching semester and EDU 489. (Grading: Pass/Fail) (course fee)

## EE – ELECTRICAL ENGINEERING DEPARTMENT OF ENGINEERING

**EE 101. ELECTRICAL ENGINEERING DESIGN I. (1)** *Prerequisite: MATH 117 or higher.* The introduction of the design process to electrical engineering students. Includes discussion of problem-solving techniques and teaming skills, an introduction to circuit fabrication techniques, and oral and written communication skills. Multiple hands-on projects.

**EE 130. OUR ELECTRICAL WORLD. (3)** An overview of the generation and utilization of electricity in modern society, with emphasis on infrastructure, critical technologies, alternative energy sources, and sustainability.

**EE 175. UNIVERSITY EXPERIENCE –ELECTRICAL ENGINEERING. (2)** *Prerequisite: For beginning college freshmen or transfer students with fewer than 24 hours of credit.* Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, degree programs, campus resources and personal development. Special attention is given to educational requirements, careers and resources in electrical engineering. EE design process is introduced

**EE 180. DIGITAL CIRCUITS. (4)** *Corequisite: MATH 117 or higher.* An introductory course in digital circuit fundamentals. Topics include number systems, Boolean algebra, binary codes, logic gates, flip-flops, counters, and registers. Laboratory included.

**EE 200. ELECTRICAL ENGINEERING DESIGN II. (1)** *Corequisite: EE 210.* A continuation of the engineering design process including an introduction to circuit and math simulation software tools, printed circuit board software and fabrication techniques. Ethics and professionalism will be addressed.

**EE 210. CIRCUITS & NETWORKS I. (3.5)** *Prerequisite: MATH 137. Corequisite: PHYS 265.* An introductory course in circuit analysis including Kirchhoff's Laws, independent and dependent sources, power and energy, lumped linear fixed networks, power factor, phasors, and three phase networks. Laboratory included.

**EE 211. CIRCUITS & NETWORKS II. (3.5)** *Prerequisite: EE 210 with a grade of "C" or better in EE 210. Prerequisite or Corequisite: MATH 331.* A second course in circuit analysis with an emphasis on frequency response techniques. Topics include impedance, transformed networks, Laplace transforms, resonance, two-port parameters, mutual inductance, forced and natural responses, transformers, transient response, and sinusoidal steady-state response. Laboratory included.

**EE 300. ELECTRICAL ENGINEERING DESIGN III. (1)** *Prerequisites: Junior standing in Electrical Engineering and consent of instructor.* Application of numerical methods, statistics, economics and production techniques to the engineering design process. Individualized writing and oral presentation tasks and ethical issues. Design project required. Circuit schematic software.

## Course Descriptions

**EE 345. ELECTRONICS. (4)** *Prerequisite: EE 211.* A first course in electronics. Topics include semiconductor concepts, operational amplifiers, diodes, transistors, biasing, large and small signal analysis. Laboratory included.

**EE 350. FUNDAMENTALS OF ELECTRICAL ENGINEERING. (4)** *Prerequisite: PHYS 265. Prerequisite or Corequisite: MATH 331.* An introductory course in electrical engineering. Topics include circuit analysis, digital electronics, and energy conversion devices such as magnetic circuits and rotating machinery. Not acceptable as credit for EE majors.

**EE 380. MICROPROCESSORS. (4)** *Prerequisites: EE 180, 210, and CS 239.* An introductory course in microprocessors. Topics include assembly language, stack operation, vectored interrupts, memory organization, input/output peripheral devices, and hardware design of a computer system. Laboratory included. (course fee)

**EE 400. DESIGN IV. (1)** *Prerequisites: Senior standing in Electrical Engineering and consent of instructor.* This course is designed to prepare students for the workplace by discussing such issues as interviewing, resume writing, ethics, and professional issues. Also design methodology and decision making will be discussed. The students will complete their proposals for EE 401 during this course.

**EE 401. EE DESIGN PROJECT. (3)** *Prerequisites: EE 400 and consent of instructor.* A course designed for the student to assume the primary responsibility or the completion of an electronic or electrical project.

**EE 405. EE SENIOR RESEARCH SEMINAR. (1)** *Corequisite: EE 400 or permission of instructor.* Contemporary topics in electrical and computer engineering, literature, surveys, scientific reporting, peer reviews and intellectual property.

**EE 410. COMPUTER DESIGN. (3)** *Prerequisite: EE 380. Corequisite: EE 411.* This is the University of Louisville course EE 510. Topics include a review of logic design and elementary computer organization. Asynchronous and synchronous logic design using VHDL and programmable logic. Design of the central processing unit, memory, control, and input-output portions of a computer. The VHDL hardware design language will be used.

**EE 411. COMPUTER DESIGN LAB. (1)** *Prerequisite: EE 380. Corequisite: EE 410.* This is the University of Louisville course EE 511. This course is a laboratory which illustrates analysis and design principles of EE 410. It includes experiments in the design of the central processing unit, memory, control, and input-output portions of a computer using VHDL and PC based for software simulation.

**EE 420. SIGNALS AND LINEAR SYSTEMS. (3)** *Prerequisite: EE 211 with a grade of "C" or better and MATH 331. Prerequisite or Corequisite: MATH 307 or MATH 350.* Topics include analysis of continuous-time and discrete-time, discrete-parameter, time-invariant, linear systems based upon the convolution integral, Fourier series and transform, Laplace transform, Z-transform, and state-space methods. Topics include impulse response, transfer function, energy spectra, filtering, sampling, and applications to networks, communications, and controls.

**EE 431. INTRODUCTION TO POWER SYSTEMS. (3)** *Prerequisites: EE 211, MATH 237, EE 473.* Introduction to the principles and concepts of electrical power and analysis of major components of an electric power system. Topics include basic electromechanics, transformers, ac and dc machines, transmission lines, and system analysis. Laboratory included.

**EE 432. POWER SYSTEMS II. (3)** *Prerequisite: EE 431.* Analysis of power systems in the steady state. Includes the development of models and analysis procedures for major power system components and for power networks.

**EE 443. MICROFABRICATION AND MEMS. (3)** *Prerequisites: EE 420, CHEM 116 or 120.* Microfabrication techniques including cleanroom technology, lithography, thermal oxidation, diffusion, ion implantation, film deposition, etching, micromachining, wafer-level bonding/polishing, and packaging yield, microtechnology measurement and analysis techniques, process simulation, CAD device-layout., microelectromechanical systems (MEMS) and microelectrical technology and application, and material issues for MEMS/ microelectronics.

**EE 445. ADVANCED ELECTRONICS. (3)** *Prerequisite: EE 345.* Advanced topic in electronics including: Power semiconductor devices; converter topologies and their applications; switch-mode dc and uninterruptible power supplies; motor drives; EMI concerns and remedies for the interfacing to electric utilities.

**EE 450. DIGITAL SIGNAL PROCESSING. (3)** *Prerequisite: EE 420. Corequisite: EE 451.* This is the University of Louisville course EE 520. Topics include discrete time signals and systems, discrete Fourier transforms, FFT algorithms, flow graph and the matrix representation of digital filters, FIR and IIR filter design techniques, quantization effects, spectral estimation, current applications of digital signal processing.

**EE 451. DIGITAL SIGNAL PROCESSING LAB. (1)** *Pre-requisite: EE 420. Corequisite: EE 450.* This is the University of Louisville course EE 521. This course focuses on the implementation of common digital signal processing function using state-of-the-art DSP devices and software. The fundamentals of discrete-time signal processing and digital signal processor architectures and applications are introduced. Emphasis is on laboratory experience involving generation of deterministic and random signals; digital filter design; quantization effects; FFT computation; linear system analysis; speech processing.

**EE 460. CONTINUOUS CONTROL SYSTEMS. (4)** *Prerequisite: EE 420 with a grade of "C" or better.* A study of continuous control systems that will address the following topics: system modeling, feedback systems, systems stability, root locus plots, Bode plot, state space analysis, and design of controllers. Laboratory included.

**EE 461. DISCRETE CONTROL SYSTEMS. (3)** *Pre-requisite: EE 460.* An applied study of discrete control systems. Topics include: modeling of discrete-time systems, applications of z-transforms, difference equations, stability analysis, root-locus analysis, and design of discrete controllers.

**EE 462. SPECIAL TOPICS IN CONTROL SYSTEMS. (3)** *Prerequisites: EE 460.* A presentation of current topics in control systems theory which builds on the content in EE 460.

**EE 465. ROBOTIC DESIGN. (3)** *Prerequisite: Junior standing and consent of instructor.* A pass/fail course for students involved in the design and building of the EE robot project.

**EE 470. COMMUNICATIONS AND MODULATION. (3)** *Prerequisite: EE 420. Corequisite: EE 475.* This is the University of Louisville course EE 550. Topics include modulations such as AM, FM, PAM, PPM, PDM, single sideband, vestigial sideband. Coherent and non-coherent detection, heterodyne action, performance and distortion, circuits for modulation and demodulation.

**EE 473. INTRODUCTION TO ELECTROMAGNETIC FIELDS AND WAVES. (3)** *Prerequisites: MATH 237, MATH 331 and PHYS 265.* This is the University of Louisville course EE 473. Topics include electrostatic and magnetostatic fields; Faraday's laws, Maxwell's equations, electromagnetic properties of matter, uniform plane waves, and transmission lines.

**EE 475. COMMUNICATION SYSTEMS LAB. (1)** *Prerequisite: EE 420. Corequisite: EE 470.* This is the University of Louisville course EE 551. Topics include laboratory exercises involving the design and analysis of electronic communication systems for the transmission of analog and digital data at radio frequencies.

**EE 477. NUMERICAL TECHNIQUES IN ELECTROMAGNETICS. (3)** *Prerequisite: EE 473 or PHYS 440.* Topics include finite difference and finite element solutions to problems in electromagnetics; absorbing boundaries for wave propagation; convergence and stability; validation with empirical and analytical approaches.

**EE 479. FUNDAMENTALS OF OPTOELECTRONICS. (2)** *Prerequisites: EE 345 and EE 473.* Introduction to the principles of electronic devices that interact with light. Topics include the generation and propagation of light, basic geometrical and wave optics, Snell's Law, polarization, optical storage, LED's micro-opto-electromechanical systems, optical sensors, fiber optics, solar cells, and fundamentals of lasers.

**EE 480. EMBEDDED SYSTEMS. (3)** *Prerequisite: EE 380.* A continuation of the study of digital systems and microprocessors focusing on the principles and applications of embedded systems.

**EE 490. INTRODUCTION TO ROBOTICS. (3)** *Prerequisites: EE 420.* History and application of robots. Robot configurations including mobile robots. Spatial descriptions and transformations of objects in three-dimensional space. Forward and inverse manipulator kinematics. Task and trajectory planning.

### EM – ENGINEERING MECHANICS DEPARTMENT OF ENGINEERING

**EM 221. UK STATICS. (3)** *Prerequisite: MATH 136. Prerequisite or concurrent: MATH 137, PHYS 255.* A study of forces on bodies at rest. Vector algebra, study of force systems, equivalent force systems, distributed forces, internal forces, principles of equilibrium, application to trusses, frames and beams and friction. This course is delivered by the University of Kentucky.

**EM 222. WKU STATICS. (3)** *Prerequisite: MATH 136. Prerequisite or corequisite: MATH 137, PHYS 255.* A study of forces on bodies at rest. Vector algebra, study of force systems, equivalent force systems, distributed forces, internal forces, principles of equilibrium, application to trusses, frames, and beams and friction. Course delivered by Western Kentucky University.



**EM 302. UK MECHANICS OF DEFORMABLE SOLIDS. (3)** *Prerequisites:* EM 222 with a grade of C or better, MATH 137. A study of fundamental principles and physical laws governing the response of mechanical components to external forces. Concepts of stress, equivalent systems, rigid body equilibrium, stress-strain and deformation, torsion, internal forces and bending moments, shear and bending moment diagrams, flexural loading, Mohr's circle and pressure vessels are presented.

**EM 303. WKU MECHANICS OF DEFORMABLE SOLIDS. (3)** *Prerequisite:* MATH 137 and 221 with a grade of "C" or better. Study of fundamental principles and physical laws governing the response of mechanical components to external forces. Concepts of stress, equivalent systems, rigid body equilibrium, stress-strain and deformation, torsion, internal forces and bending moments, shear and bending moment diagrams, flexural loading, Mohr's circle and pressure vessels are presented. This course is delivered by Western Kentucky University.

**EM 313. DYNAMICS. (3)** *Prerequisite:* EM 221. *Prerequisite or concurrent:* MATH 331. Study of the motion of bodies. Kinematics: Cartesian and polar coordinate systems, normal and tangential components, translating and rotating reference frames. Kinetics of particles and rigid bodies, laws of motion, work and energy, impulse and momentum.

**ELED – ELEMENTARY EDUCATION  
SCHOOL OF TEACHER EDUCATION**

**ELED 345. TEACHING STRATEGIES FOR ELEMENTARY TEACHERS. (3)** *Prerequisites:* EDU 250 and PSY 310 with a grade of "C" or higher; a passing score on specified standardized instrument, overall GPA of 2.5 or higher, and admission to Teacher Education pending. *Prerequisite or Corequisite:* EXED 330. Integrates planning and evaluative techniques with appropriate learning theories. Learning activities for the full range of ability/development levels of students are prescribed.

**ELED 355. STUDENT DIVERSITY IN THE CLASSROOM. (3)** *Prerequisites:* EDU 250, PSY 310, EXED 330 and ELED 345 with a grade of "C" or higher; and admitted to Teacher Education. *Corequisite:* ELED 407 and 365. Focus will be on the range of student diversity and identification of characteristics of children in an integrated elementary classroom. Field experiences in public schools and/or other appropriate settings away from campus are required. Students are responsible for their own transportation to designated or assigned sites.

**ELED 365. TEACHING STRATEGIES FOR ELEMENTARY TEACHERS II. (3)** *Prerequisites:* ELED 345 and EXED 330 with grades of "C" or higher, and admitted to Teacher Education. *Corequisites:* ELED 407 and ELED 355. The second course in a two course series dedicated to teaching strategies. Focuses on strategies unique to teaching in an integrated elementary classroom. Field experiences in public schools and/or other appropriate settings away from campus are required. Students are responsible for their own transportation to designated or assigned sites.

**ELED 405. TEACHING MATHEMATICS IN THE ELEMENTARY SCHOOL. (3)** *Prerequisites:* MATH 212, LTCY 420, ELED 355, 365 and 407 with grades of "C" or higher; completion of General Education Category - DI science courses; and admitted to Teacher Education. *Corequisites:* ELED 406 and 465. Materials and methods of instruction in mathematics for grades P-5 with emphasis upon creative utilization of available materials and techniques. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**ELED 406. TEACHING SCIENCE IN THE ELEMENTARY SCHOOL. (3)** *Prerequisites:* MATH 212, LTCY 420, ELED 355, 365 and 407 with grades of "C" or higher, completion of General Education Category -DI Science courses; and admitted to Teacher Education. *Corequisites:* ELED 405 and ELED 465. A study of the objectives and place of science in grades P-5. The course includes planning units of work, organizing and using materials and resources, and developing ability in the techniques of elementary school science teaching. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**ELED 407. MATERIALS AND METHODS IN SOCIAL STUDIES. (3)** *Prerequisite:* ELED 345 and EXED 330 with grades of "C" or higher; admitted to Teacher Education, and completion of the General Education Category "C" Social and Behavioral Science courses. *Corequisites:* ELED 365 and ELED 355. A study of the objectives, materials, organization, and instructional techniques in the social studies appropriate to grades P-5. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**ELED 445. INTRODUCTION TO EDUCATIONAL TECHNOLOGY. (3)** Instruction and laboratory experience in the operation and maintenance of audio-visual equipment; theory relative to the best practices in audio-visual techniques. Equivalent to LME 445.

**ELED 465. SENIOR PROJECTS IN ELEMENTARY EDUCATION. (3)** *Prerequisites:* MATH 212, LTCY 420, ELED 355, 365 and 407 with grades of "C" or higher; completion of General Education Category – D1 science courses; and admitted to Teacher Education. *Corequisites:* ELED 405 and ELED 406. Part of the professional block semester, which is the culminating experience for elementary teacher candidates prior to the student teaching semester. Projects related to the corequisite courses will be completed. Field experience in public school and/or other appropriate settings away from campus will be required. Students are responsible for their own transportation to designated or assigned sites.

**ELED 490. STUDENT TEACHING. (5-10)** *Prerequisites:* Admission to teacher education; admission to student teaching; and completion of the following courses with grades of "C" or higher: MATH 205, 206, and 308. *Corequisite:* EDU 489. Supervised assignment in approved school setting. Must complete a minimum of sixteen weeks in one or two placements depending on certification requirements. Students follow the academic calendar of the school district in which they are placed and are responsible for providing their own transportation to assigned site(s). (course fee)

**ELED 491. LECTURE IN LIEU OF STUDENT TEACHING. (5)** Seminar in current issues in teaching for certified teachers seeking additional endorsement. Director of Student Teaching approval required.

**ENG – ENGLISH  
DEPARTMENT OF ENGLISH**

**ENG 051. ENGLISH AS A SECOND LANGUAGE WRITING. (3-6)** *Prerequisite:* COMPASS Writing Skills Placement Test score between 23-54 and COMPASS e-Write score of 4; or permission of instructor. A writing course designed to give non-native speakers of English intensive preparation for ENG 100.

**ENG 100. INTRODUCTION TO COLLEGE WRITING. (3)** *Prerequisite:* Minimum score of 16 on English section of ACT or successful completion of 055 with a grade of "C" or better. Students with ACT English scores of 16 and 17 will be required to attend ENG 100E sections which include an extra hour of class time. Students who have unsuccessfully attempted ENG 100 (earned grade of W, F, or FN) may not retake ENG 100 as a WEB section except under extraordinary circumstances, and then only with the written permission of the Director of Composition. Emphasizes writing for a variety of rhetorical situations with attention to voice, audience and purpose. Provides practice in development, organization, revision and editing. Introduces research skills. [GEN ED A-I]

**ENG 104. INTRODUCTION TO LINGUISTICS. (3)** A general introduction to language study with emphasis on units of sound, units of meaning, sentence structure, dialects, and other cultural aspects of language. Focus is on the English language.

**ENG 200. INTRODUCTION TO LITERATURE. (3)** *Prerequisite:* ENG 100. Introductory study of fiction, poetry, and drama demonstrating techniques by which literary artists reflect human experience. Substantial student writing about literature will be required. [GEN ED B-I]

**ENG 202. HONORS FORUM (1)** An informal introduction to English honors. Topics vary by term.

**ENG 203. CREATIVE WRITING. (3)** *Prerequisites:* ENG 100 and 200. An introduction to the writing of poetry, fiction, creative nonfiction and drama as genres of literary expression.

**ENG 299. INTRODUCTION TO ENGLISH STUDIES. (3)** *Prerequisites:* ENG 200 or permission of instructor. Introduction to the discipline of English studies for literature and writing majors, including exploration of issues and conflicts within the discipline, strategies for reading and researching literary texts, overview of requirements and opportunities within the major and introduction to career and graduate study options.

**ENG 300. WRITING IN THE DISCIPLINES. (3)** *Prerequisites:* ENG 100 and 200 or equivalent. Interdisciplinary writing course to be taken in the junior year. Students will read and write about challenging texts from a number of fields. Each student will produce a substantial research project appropriate to his or her chosen field. [GEN ED A-I]

**ENG 301. ARGUMENT AND ANALYSIS IN WRITTEN DISCOURSE. (3)** *Prerequisites:* ENG 100 and ENG 300. A survey of major theories of argument and analysis with special attention to writing effective argumentative and analytical essays.

## Course Descriptions

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**ENG 302. LANGUAGE AND COMMUNICATION. (3)** *Prerequisite: ENG 100.* A course in English grammar and usage designed primarily for elementary education majors. Emphasis is given to sentence structure. Attention is also given to the nature of language, historical backgrounds, dialects, and standards of correctness.

**ENG 303. INTERMEDIATE FICTION WRITING. (3)** *Prerequisites: ENG 200 and 203 or permission of instructor.* A concentrated study of the techniques of writing fiction, emphasizing contemporary theory and practice.

**ENG 304. ENGLISH LANGUAGE. (3)** *Prerequisite: ENG 100.* Study of the structure of English words and sentence patterns including review of the historical conditions leading to the development of Modern English grammar.

**ENG 305. INTERMEDIATE POETRY WRITING. (3)** *Prerequisite: ENG 200 and 203 or permission of instructor.* An intensive course in the writing of poetry. Some attention to the practice and prevalent theories of contemporary poets.

**ENG 306. BUSINESS WRITING. (3)** *Prerequisite: ENG 100.* Designed to meet the needs of students in business fields, this course teaches the preparation of written reports, case studies, and other forms of professional writing.

**ENG 307. TECHNICAL WRITING. (3)** *Prerequisite: ENG 100.* Designed to meet the needs of students in engineering and other technical fields, this course teaches the preparation of written and oral reports. Emphasizes formal and informal reports, but also includes various kinds of business letters, memoranda, and other forms necessary in the students' future professional role.

**ENG 309. DOCUMENTARY FILM. (3)** *Prerequisites: ENG 200.* Introductory study of documentary film and theory with special attention to the genre's complex reception as "non-fiction" in diverse social and cultural contexts. Among the forms to be studied are the essay-film, cinema verite, reportage, and mockumentary. Will include a film viewing lab.

**ENG 311. CREATIVE NONFICTION WRITING. (3)** *Prerequisites: ENG 200 and 203 or permission of the instructor.* An intensive study of the writing of creative nonfiction (literary nonfiction prose), with emphasis on contemporary theory and practice.

**ENG 320. AMERICAN STUDIES I. (3)** *Prerequisite: ENG 200 or the equivalent.* Designed to examine the diverse origins and the decisive elements in the development of American culture and to provide a wide cultural appreciation and a greater understanding of the mainstream of American thought.

**ENG 321. AMERICAN STUDIES II. (3)** *Prerequisite: ENG 200 or the equivalent.* Designed to examine further the diverse origins and the decisive elements in the development of American culture and to provide a wide cultural appreciation and a greater understanding of the mainstream of American thought.

**ENG 333. MEDIEVAL LITERATURE. (3)** *Prerequisites: ENG 100 and 200.* A survey of representative literary works of the Middle Ages selected from various cultures, with an emphasis on the continuities of medieval literary traditions and cultural values. Non-English works will be read in translation.

**ENG 340. SPECULATIVE FICTION. (3)** *Prerequisite: ENG 200 or the equivalent.* A survey of the development of the genre, including science fiction, and its relationship to main literary currents.

**ENG 354. HISTORY OF DRAMA TO 1640. (3)** *Prerequisite: ENG 200 or the equivalent.* A comprehensive course which traces the major developments in drama from the ancient Greeks to 1640. Emphasis on representative dramatists and plays.

**ENG 355. HISTORY OF DRAMA SINCE 1640. (3)** *Prerequisite: ENG 200 or the equivalent.* A continuation of ENG 354.

**ENG 358. DRAMA WRITING. (3)** *Prerequisites: ENG 200 and 203 or permission of instructor.* A concentrated study of the techniques of drama writing emphasizing contemporary theory and practice.

**ENG 360. GAY AND LESBIAN LITERATURE. (3)** *Prerequisites: ENG 100 and 200.* Introduction to gay and lesbian literature from antiquity to present, with emphasis on concepts of sex and gender, critical theory and cultural constructionism in global and historical contexts.

**ENG 365. FILM ADAPTATION. (3)** *Prerequisites: ENG 100 and 200.* Examines the adaptation of literary works into film not only as an intertextual product but as a process of creative transformation, with emphasis on film analysis and some attention to adaptation theory.

**ENG 366. HISTORY OF NARRATIVE FILM. (3)** *Prerequisites: ENG 100 and 200.* Examines the history and development of narrative film from the silent era to the present. Emphasis on specific narrative conventions of Hollywood cinema.

**ENG 368. JAPANESE CINEMA IN TRANSLATION. (3)** *Prerequisite: ENG 200.* Examines major periods, genres and figures in Japanese cinema, with appropriate background readings in Japanese history/culture. Emphasizes a comparison of Japanese cinema with Hollywood and explores the influence of Japanese cinema on other world cinema.

**ENG 369. COOPERATIVE EDUCATION IN ENGLISH I. (3)** *Prerequisite: Admission to departmental cooperative program.* Appropriate supervised work with a cooperating organization.

**ENG 370. MULTICULTURAL LITERATURE IN AMERICA. (3)** *Prerequisite: ENG 200 or General Education Category B.* Study of literature written in the U.S. by writers from a variety of racial and ethnic groups. [GEN ED E]

**ENG 381. SURVEY OF ENGLISH LITERATURE I. (3)** *Prerequisite: ENG 200.* A study of selected works by representative major authors reflecting the chronological development of English literature to 1798.

**ENG 382. SURVEY OF ENGLISH LITERATURE II. (3)** *Prerequisite: ENG 200.* A study of selected works by representative major authors reflecting the chronological development of English literature from 1798 to the present.

**ENG 385. WORLD LITERATURE. (3)** *Prerequisite: ENG 200 or the equivalent.* Study of selected works in translation by major figures in world literature from ancient Greece to modern Europe, exclusive of British and American writers.

**ENG 387. STUDIES IN AUTOBIOGRAPHY. (3)** *Prerequisites: ENG 100, 200, and 300.* An examination of the literary components and cultural context of autobiographical works, with particular emphasis on under-represented groups, gender, race, and class. [GEN ED E]

**ENG 389. COOPERATIVE EDUCATION IN ENGLISH II. (3)** *Prerequisite: Admission to departmental cooperative program.* Appropriate supervised work with a cooperating organization.

**ENG 390. MASTERPIECES OF AMERICAN LITERATURE. (3)** *Prerequisite: ENG 200 or the equivalent.* Provides for familiarity with the better-known works of leading American authors. May be counted toward minor in writing but not toward English major or minor.

**ENG 391. SURVEY OF AMERICAN LITERATURE I. (3)** *Prerequisite: ENG 200.* A study of selected works by representative major authors reflecting the chronological development of American Literature to 1865.

**ENG 392. SURVEY OF AMERICAN LITERATURE II. (3)** *Prerequisite: ENG 200.* A study of selected works by representative major authors reflecting the chronological development of American Literature from 1865 to the present.

**ENG 393. AFRICAN-AMERICAN LITERATURE. (3)** *Prerequisite: ENG 200 or permission of instructor.* A critical study of the contributions of African-American writers to American literature. [GEN ED E]

**ENG 394. KENTUCKY LITERATURE. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course from Gen Ed Cat B1.* A survey of literary people and places in Kentucky, detailed study of several works of Kentucky writers.

**ENG 395. CONTEMPORARY LITERATURE. (3)** *Prerequisite: ENG 200.* A study of representative literature since World War II, stressing significant writers, thematic concerns, experiments in technique, and selected criticism. The course content, variable by genre, focuses primarily on fiction, poetry, or drama in alternate semesters.

**ENG 396. MYTHOLOGY. (3)** *Prerequisite: ENG 200 or the equivalent.* Greek, Roman and Norse myths and their influence on art and literature.

**ENG 398. HEMINGWAY AND FAULKNER. (3)** *Prerequisite: ENG 200 and honors participation or 3.2 GPA required.* A critical study of the major literary works of Ernest Hemingway and William Faulkner. For honors-eligible students only. [GEN ED B-I]

**ENG 399. TOPICS IN ENGLISH. (3)** *Prerequisite: ENG 200 or the equivalent.* A semester-long, detailed study of a specified topic in language, literature, or composition.

**ENG 401. ADVANCED COMPOSITION. (3)** *Prerequisites: ENG 100 and ENG 300.* Theory and practice in reading and writing various genres of non-fiction, including researched essays, cultural critique, exposition, narrative, and argument. Special attention to style, voice, arrangement and advanced writing techniques.

**ENG 402. EDITING AND PUBLISHING. (3)** *Prerequisite: Either ENG 306 or ENG 307 and one additional upper-level professional writing class.* Editing collections of student works in several types, including experience in computer text editing, lectures by visiting publishers and editors of books, journals, and newspapers.

**ENG 403. WRITING MEMOIR AND AUTOBIOGRAPHY. (3)** *Prerequisites: ENG 203 and 300.* A course in the techniques of writing autobiography; readings will be chosen primarily from contemporary American examples of the genre.

**ENG 404. HISTORY OF THE ENGLISH LANGUAGE. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course from Gen Ed Cat B1.* A study of the origins and development of the language from Indo-European to modern English, with emphasis on developments in the sound system, vocabulary and grammar. Attention is also given to historical and cultural forces, which have affected the language.

**ENG 407. LINGUISTIC ANALYSIS. (3)** *Prerequisites: ENG 104 or ENG 302 or ENG 304, or an equivalent.* The study of current linguistic theory, which includes the important levels of language as a means of communication, as well as some of the various theories and applications of linguistic theory to other fields of study.

**ENG 408. PSYCHOLINGUISTICS AND SOCIOLINGUISTICS. (3)** *Prerequisites: ENG 100, 200 or its Gen Ed Category B1 equivalent, and ENG 407.* The study of developmental psycholinguistics (language acquisition), experimental psycholinguistics (speech production/comprehension), and sociolinguistics (how language varieties are used by families, school systems and multicultural nations).

**ENG 409. PRACTICUM IN ONE-TO-ONE WRITING INSTRUCTION. (1)** *Prerequisites: ENG 100 and ENG 200 or any other course from Gen Ed Cat B1.* Participants will study the theory and practice of writing conferences and tutorials. Course will prepare participants to work individually with students in tutorial settings.

**ENG 410. COMPOSITION THEORY AND PRACTICE IN WRITING INSTRUCTION. (3)** *Prerequisites: ENG 300 and either ENG 302 or ENG 304.* A study of contemporary theories of composition with an emphasis on their application to writing and the teaching of writing.

**ENG 411. DIRECTED WRITING. (3)** *Prerequisite: Permission of the instructor.* A tutorial for students to work under the supervision of a writing instructor. Students choose the form of writing they wish to pursue.

**ENG 412. THEORY AND PRACTICE OF RHETORIC. (3)** *Prerequisites: ENG 300, and either ENG 200 or any B1 equivalent.* A survey of the history of rhetorical theory from the classical to the contemporary period with emphasis on how theories reflect and guide public and written discourse and the teaching of writing.

**ENG 413. CREATIVE WRITING CAPSTONE. (3)** *Prerequisite: Two upper-level writing courses: creative writing majors or minors with senior standing.* A capstone course in the creative writing concentration; provides a workshop setting for students with substantial creative writing projects.

**ENG 414. ADVANCED PROFESSIONAL WRITING WORKSHOP. (3)** *Prerequisite: Two upper-level writing courses in the Professional Writing option and senior standing.* A capstone course for students in the English major with a professional writing concentration; provides a workshop setting for students with substantial writing projects and culminates in production of a portfolio of professional writing.

**ENG 415. WRITING AND TECHNOLOGY. (3)** *Prerequisite: ENG 300.* Study of issues surrounding interrelations of technology and writing; effects of technologies (e.g. printing press, computers) on writing processes and on types of writing; institutional changes wrought by computers.

**ENG 430. 19<sup>TH</sup> CENTURY AMERICAN LITERATURE. (3)** *Prerequisite: ENG 200 or its equivalent.* Seminar in 19<sup>th</sup> Century American Literature; Course topics will vary.

**ENG 455. AMERICAN DRAMA. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course in Gen Ed Cat B1.* This course deals with the development of American drama from colonial productions to present-day plays.

**ENG 457. BRITISH LITERATURE SINCE 1900. (3)** *Prerequisites: ENG 100 and 200 or another course in Gen Ed Cat B-1.* A study of British literature from 1900 to the present, including fiction, poetry, and drama, with attention to innovations in literary form and cultural context.

**ENG 459. MODERN DRAMA. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course in Gen Ed Cat B1.* A selected study of dramatic literature since Ibsen with emphasis on evolving developments and trends in world theatre.

**ENG 460. LITERARY THEORY AND CRITICISM. (3)** *Prerequisites: ENG 100 and at least one upper-level literature course.* A study of theories and methods of literary and cultural analysis selected from ancient times to the present. Focus includes the written practice of criticism in response to a wide variety of texts.

**ENG 465. FILM GENRES. (3)** *Prerequisites: ENG 100 and 200 and either FILM 201 or ENG 365, or instructor's permission.* Study of the historical development, thematic and stylistic conventions, and cultural significance of film genre(s). Surveys representative films from one or two genres, e.g. film noir and the Western; romantic comedy and family melodrama; horror and science fiction; the musical; the war film; the epic.

**ENG 466. FILM THEORY. (3)** *Prerequisites: ENG 366, ENG 365; FILM 201, or permission of instructor.* Study of major theories of narrative film and related media; specific theories examined will include formalist, auteurist, historical, structuralist, psychoanalytical, and political. Will include viewing of selected films.

**ENG 467. VISITING WRITER SUMMER WORKSHOP. (3)** *Prerequisites: At least one creative writing class beyond ENG 203 and instructor permission required.* Advanced creating writing workshop. Offered for four weeks each summer by a visiting writing of national reputation. Alternating genres. May be repeated once if different genre.

**ENG 468. EARLY MODERN ENGLISH LITERATURE. (3)** *Prerequisite: ENG 200 or any other course in General Education Category B-I.* A study of sixteenth- and seventeenth-century English literature with attention to embrace of the vernacular, development of genres and poetic forms, and cultural and social contexts.

**ENG 469. SECOND LANGUAGE ACQUISITION THEORY. (3)** *Prerequisite: One linguistics course.* An introduction to theories, methods, and materials for teaching English as a second or foreign language.

**ENG 470. METHODS AND MATERIALS FOR TEACHING ENGLISH AS A SECOND LANGUAGE. (3)** *Prerequisites: ENG 469 or 469G and one linguistics course.* Selecting and evaluating commercially-prepared materials and developing teacher-made materials for Teaching English as a Second Language (TESL).

**ENG 471. TEACHING ENGLISH AS A SECOND LANGUAGE PRACTICUM. (4)** *Prerequisites: ENG 407, 408, 469, 470 and permission of the instructor.* Supervised observation and instruction in public schools or other appropriate settings, culminating in the production of a portfolio. Students are responsible for arranging their own transportation to designated or assigned sites. The class consists of 30 clock teaching hours and 15 classroom hours.

**ENG 474. ADVANCED POETRY WRITING. (3)** *Prerequisite: ENG 305 or equivalent.* An advanced, intensive course in the writing of poetry, emphasizing the practice and prevalent theories of contemporary poets.

**ENG 475. ADVANCED FICTION WORKSHOP. (3)** *Prerequisite: ENG 303 or equivalent.* An advanced and intensive course exploring the techniques of writing fiction, emphasizing contemporary theory and practice.

**ENG 476. CRITICAL APPROACHES TO LITERATURE IN THE SECONDARY CURRICULUM. (3)** *Prerequisites: At least two 300- or 400-level literature courses.* For English for Secondary Teachers majors, this course surveys texts frequently presented in secondary classes—including widely anthologized short stories, drama, and poetry; classic novels; and contemporary young adult literature—and examines considerations of text selection and presentation.

**ENG 481. CHAUCER. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course in Gen Ed Cat B1.* Representative works of Chaucer, with emphasis on the *Canterbury Tales*; some attention to the medieval background.

**ENG 482. SHAKESPEARE. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course in Gen Ed Cat B1.* Major plays from each stage of Shakespeare's career studied in the light of current Shakespearean criticism and writings from the time.

**ENG 484. BRITISH ROMANTICISM. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course in Gen Ed Cat B1.* Background and phases of romanticism, with a study of representative exponents of the Romantic Movement.

**ENG 486. THE EIGHTEENTH CENTURY. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course in Gen Ed Cat B1.* The concentrated study of eighteenth century literature, forms, and developments.

**ENG 487. DANTE'S DIVINE COMEDY AND ITS INFLUENCES. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course in Gen Ed Cat B1.* An intensive study of *The Divine Comedy*, in English translation, along with Dante's major sources and analogues.

**ENG 488. LITERATURE OF THE VICTORIAN AGE. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course in Gen Ed Cat B1.* A study of selected works by major poets, essayists, and novelists of Victorian England as a reflection of the culture of the age.

**ENG 489. THE ENGLISH NOVEL. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course in Gen Ed Cat B1.* The technique and history of the novel. Several representative novels studied.

**ENG 490. THE AMERICAN NOVEL. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course in Gen Ed Cat B1.* History and technique of the American novel from Cooper to the present. Several representative novels are studied.



## Course Descriptions

**ENG 492. SENIOR SEMINAR. (1)** *Prerequisites: ENG 299 and senior standing.* In the Senior Seminar students will synthesize and assess what they have learned over the course of the English major by reviewing the discipline of English, exploring career and graduate studies opportunities, and collecting and revising selected major projects from previous classes.

**ENG 493. AMERICAN POETRY. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course from Gen Ed Cat B1.* The course examines, in addition to major writers, selected major movements and schools in American poetry, paying special attention to influences, techniques, and styles.

**ENG 495. SOUTHERN LITERATURE. (3)** *Prerequisites: ENG 100 and ENG 200 or any other course from Gen Ed Cat B1.* This course traces the development of uniquely Southern characteristics as exhibited in the works of major writers of the South.

**ENG 497. WOMEN'S LITERATURE. (3)** *Prerequisites: ENG 200 and 300.* An examination of the themes, aesthetic importance, and historical context of canonical fiction by women, with emphasis on twentieth century American and British women writers.

**ENG 499. DIRECTED STUDY IN ENGLISH. (3)** *Prerequisites: 3.0 grade point average; senior standing.* A study of a specific literary or linguistic topic directed by a faculty member.

### ENGL – ENGLISH DEPARTMENT OF LIBERAL ARTS AND SCIENCES

**ENGL 100C. INTRODUCTION TO COLLEGE WRITING.** *See ENG 100.*

**ENGL 110C. WRITTEN ARGUMENT. (3)** The study of written argument, with emphasis on rhetorical principles, development of ideas, logical progression of thought, and fallacies. Continued instruction and practice in critical reading and thinking, research skills and effective use of language. Not equivalent to Eng 300 in Western Kentucky University degree programs.

**ENGL 200C. INTRODUCTION TO LITERATURE.** *See ENG 200.*

**ENGL 203C. CREATIVE WRITING.** *See ENG 203.*

### ENGR – ENGINEERING DEPARTMENT OF ENGINEERING

**ENGR 175. UNIVERSITY EXPERIENCE-- ENGINEERING. (1)** *Prerequisite: MATH 116 or eligibility for higher math course.* For beginning college freshmen or transfer students with fewer than 24 semester hours of credit. Topics include study skills, critical thinking, information literacy, exploration of engineering majors and careers, campus resources, effective teamwork skills, and basic computer tools regularly used by engineering students. Engineering design processes and practices introduced.

**ENGR 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** To familiarize Ogden Research Scholars and other research oriented students with the fundamentals of choosing a research topic, performing a bibliographical search on a subject, topic, classification of instruments, data taking, data reduction, professional ethics and other research oriented topics. The common points of research methodology in the different scientific areas will be accentuated. Examples will be drawn from the various disciplines. Use of computers will be emphasized. (Course does not count towards any major or minor.) Equivalent to BIOL 295, CHEM 295, CS 295, GEOL 295, MATH 295, and PHYS 295.

### ENT – ENTREPRENEURSHIP DEPARTMENT OF MANAGEMENT

**ENT 308. INNOVATION MANAGEMENT. (3)** *Prerequisite: Junior Standing.* A study of innovation identification, capitalization and industry dynamics in entrepreneurial and intrapreneurial contexts.

**ENT 312. ENTREPRENEURSHIP. (3)** *Prerequisite: Junior standing.* A study of the entrepreneurial process. Topics include new business opportunities, market entry, access to resources, start-up steps, acquisition, franchising, and careers. Text, cases and hands-on business projects are used.

**ENT 380. NEW VENTURE BUSINESS PLANNING. (3)** *Prerequisite: ENT 312 or permission of instructor.* An in-depth analysis of business planning. The purpose and components of business plans and feasibility analyses are presented. Students prepare a written plan for venture, whether for or not-for profit. Students are strongly encouraged to enter the course with an idea for a venture.

**ENT 410. SENIOR SEMINAR-ENTREPRENEURSHIP. (3)** *Prerequisite: Senior standing.* A special topics course covering subjects of current interest in entrepreneurship. Class format varies with instructor. Can be repeated for a total of up to nine hours.

**ENT 425. INTERNATIONAL ENTREPRENEURSHIP. (3)** *Prerequisite: MGT 303 or ENT 312.* An introduction to the competitive global economy and entrepreneurship in the international context. Students develop an understanding of the entrepreneurial climate across countries and how to become more competitive in the global context.

**ENT 463. SMALL BUSINESS MANAGEMENT. (3)** *Prerequisites: ECON 150 or ECON 202 or ECON 203, ACCT 200, MKT 220 and MGT 312.* Provides a basic understanding of how to manage an ongoing small business and aids in the development of managerial skills necessary to operate small businesses.

**ENT 490. PRACTICUM IN ENTREPRENEURSHIP. (3)** *Prerequisites: ENT 312, junior standing, 2.5 cumulative GPA, and permission of the management chair and instructor.* Includes internships, independent studies, and special projects of interest in the entrepreneurship area. May include individual research projects as well as internships in profit or non-for profit organizations with duties relating to entrepreneurship. Projects must be approved by the management chair.

**ENT 496. SMALL BUSINESS ANALYSIS AND STRATEGY. (3)** *Prerequisites: Senior standing and CIS 243, FIN 330, MGT 210, MGT 314, MKT 220.* Opportunities for students to act in a management consultant relationship with selected small/medium regional entrepreneurial organizations, firms. Overall strategy and policy issues are emphasized.

### ENV – ENVIRONMENTAL SCIENCE DEPARTMENT OF PUBLIC HEALTH

**ENV 120. INTRODUCTION TO OCCUPATIONAL SAFETY AND HEALTH. (3)** An introduction to the principles of occupational safety and health. A survey course covering the basic principles and techniques of accident investigation and prevention. Includes field trips.

**ENV 221. SAFETY AND HEALTH STANDARDS, CODES, AND REGULATIONS. (3)** *Prerequisite: ENV 120 or permission of instructor.* A review of the important occupational safety and health standards and codes with particular emphasis on application of these codes to typical work situations. Includes field trips.

**ENV 280. INTRODUCTION TO ENVIRONMENTAL SCIENCE. (3)** An introductory course devoted to the study of environmental issues. A general understanding of the application of science to solve contemporary environmental challenges. (Equivalent to BIOL 280, CHEM 280, CH 280, and GEOG 280) [GEN ED D-1]

**ENV 310. GENERAL HYDROLOGY. (3)** *See GEOL 310 or GEOG 310.*

**ENV 321. FUNDAMENTALS OF INDUSTRIAL HYGIENE. (3)** *Prerequisites: MATH 117 or higher and CHEM 105/106 or higher or permission of instructor. Corequisite: ENV 323.* A basic introduction to the field of industrial hygiene. A survey of the effects of toxic agents on the body and general methods of control. Includes field trips.

**ENV 322. PHYSICAL HAZARDS RECOGNITION AND CONTROL I. (3)** *Prerequisite: ENV 221 or permission of instructor.* An examination of physical hazards in the work environment and methods of recognition and control. Includes field trips.

**ENV 323. FUNDAMENTALS OF INDUSTRIAL HYGIENE LABORATORY. (1)** *Corequisite: ENV 321.* Examines basic industrial hygiene sampling, measurement and analytical techniques. Laboratory exercises will include airflow calibration standards, procedures for calibration of personal sampling pumps, instrumentation and indoor air quality monitoring methodology. (course fee)

**ENV 327. PHYSICAL HAZARDS RECOGNITION AND CONTROL II. (3)** *Prerequisite: ENV 322.* Continuation of ENV 322. An examination of the control of physical hazards in the work environment. Includes field trips.

**ENV 331. HAZARDOUS MATERIALS RECOGNITION AND CONTROL. (3)** *Prerequisites: MATH 116 and CHEM 107.* An examination of the properties of hazardous materials, an analysis process for use in situations involving hazardous materials, and control measures for stabilization of hazardous materials emergencies. Course applicable to all situations involving hazardous materials, fire service, transportation or industrial use.

**ENV 360. AIR POLLUTION CONTROL. (3)** *Prerequisites: CHEM 107/108 and MATH 118 or higher.* Examines air pollution sources, nature and behavior of air pollutants, air sampling and analysis, dispersion and diffusion in the atmosphere, air pollution meteorology, and methods and equipment for community air pollution control. Topics in indoor air quality (IAQ), modeling, and prediction, air quality control regulations, control strategies for stationary and mobile sources.

**ENV 365. AIR POLLUTION CONTROL LABORATORY. (1)** *Co-requisite: ENV 360.* Provides hands-on experience with field instrumentation and equipment, calibration methods and quantitative determination of different physical and chemical air pollutants. Examines air sampling, measurement and analytical methodologies and basic scientific and analytical techniques used in air pollution control. (course fee)

**ENV 367. SUPERVISED WORK EXPERIENCE IN INDUSTRY. (1-6)**

*Prerequisites:* ENV 423 and permission of instructor. Supervised employment in industry. Assignments individually arranged by university coordinator and the cooperating industry. Written reports required. Off-campus travel required.

**ENV 375. INTRODUCTION TO WATER RESOURCES. (3)** *Prerequisite:* GEOL 310 or ET 280 or consent of instructor. Recent advances and the present state of water resources; water resources planning and development; management and administration. Priorities in water resources research. Selected case histories.

**ENV 380. PRINCIPLES OF ENVIRONMENTAL TOXICOLOGY. (3)** *Prerequisites:* CHEM 105/106, MATH 118 or higher, and ENV 280. An overview of the principles of environmental toxicology. Reviews the effects of environmental toxicants in relation to ecosystems and human health and provides an overview of techniques used in assessing the presence and distribution of environmental toxicants.

**ENV 410. WATER TREATMENT PROCESSES. (3)** *Prerequisite:* CHEM 107/108 and MATH 118 or higher. Determination of water quality characteristics pertinent to water and waste-water treatment.

**ENV 411. WATER TREATMENT PROCESSES LABORATORY. (1)** *Prerequisite:* ENV 375. *Corequisite:* ENV 410. Application of water treatment processes in a laboratory. Topics will include water quality measurements, water treatment methods and monitoring. (course fee)

**ENV 423. SAFETY PROGRAM MANAGEMENT. (3)** *Prerequisites:* ENV 321 and 322, or permission of instructor. Acquaints students with the common elements of a modern safety program.

**ENV 430. RADIOLOGICAL HEALTH. (3)** *Prerequisite:* PHYS 332. *Corequisite:* ENV 435. Fundamentals of detection of ionizing radiation, radiation interaction, with matter biological effects radiation dosimetry and radiation protection concepts.

**ENV 435. RADIOLOGICAL HEALTH LABORATORY. (1)** *Corequisite:* ENV 430. A laboratory course correlated with ENV 430. Two laboratory hours per week.

**ENV 440. INDUSTRIAL HYGIENE I. (3)** *Prerequisite:* CHEM 120 or equivalent. *Corequisite:* ENV 321. Techniques for sampling and evaluation of chemical health hazards in the industrial environment including basic exposure modeling.

**ENV 441. INDUSTRIAL HYGIENE I LAB. (1)** *Corequisite:* ENV 440. Laboratory to accompany EHS 440, Industrial Hygiene I. Techniques of calibration, sampling, and analysis of chemical health hazards in the industrial environment.

**ENV 442. INDUSTRIAL HYGIENE II. (3)** *Prerequisites:* MATH 116, PHYS 231, BIOL 131, and ENV 321. *Corequisite:* ENV 443. Second of a two-course sequence in Industrial Hygiene. The focus is on recognition, evaluation, and control of physical health hazards in the industrial environment.

**ENV 443. INDUSTRIAL HYGIENE II LAB. (1)** *Corequisite:* ENV 442. Laboratory to accompany ENV 442, Industrial Hygiene II. Principles and procedures for evaluating physical health hazards in the industrial environment will be covered.

**ENV 460. ENVIRONMENTAL MANAGEMENT. (3)** *Prerequisites or corequisites:* ENV 360, 410, 480. Provides students with a working knowledge of environmental management techniques, standards, permitting and programs that are used to protect our air, water and land resources. Off-campus travel is required. Students are responsible for arranging for their own transportation to designated sites.

**ENV 471. INDUSTRIAL VENTILATION. (3)** *Prerequisite:* ENV 440. Principles and design of ventilation as a means of control of chemical health hazards in the industrial environment. Includes instruction in both local exhaust and dilution ventilation design processes. In addition to reinforcing design fundamentals, laboratory exercises will also emphasize testing, monitoring, and troubleshooting existing ventilation systems. (2) lecture, (2) laboratory.

**ENV 474. ENVIRONMENTAL RISK ASSESSMENT. (3)** *Prerequisites:* ENV 321 and 380. Develops both qualitative and quantitative skills in assessing the health risk of exposure to hazardous environmental agents. Topics include risk prioritization approaches and exposure monitoring strategies. Laboratory sessions focus on the application of risk assessment software tools and include a field project. Off-campus travel is required. Students are responsible for arranging their own transportation to designated sites.

**ENV 475. SELECTED TOPICS IN ENV. (1-3)** *Prerequisite:* Permission of instructor. A consideration of special topics to acquaint the advanced student with significant problems and developments of current interest in environmental technology. Topics to vary each semester offered. Field trips as appropriate.

**ENV 480. HAZARDOUS AND SOLID WASTE MANAGEMENT. (3)** *Prerequisites:* CHEM 107/108 and MATH 118 or higher. Includes the physical, chemical, and biological stressors associated with both hazardous and solid waste. Emphasis on characterization and remediation efforts.

**ENV 485. EDUCATIONAL EXPERIENCES IN OCCUPATIONAL SAFETY AND HEALTH. (3)** *Prerequisite:* Permission of instructor. Special collection of selected short courses with content focused in the area of occupational safety and health. Instruction provided by outside agencies including the Kentucky Labor Cabinet, the Kentucky Regional Technology Center, and the North Carolina National Institute for Occupational Safety and Health Educational Resource Center. Total instruction time approximately 160 hours. (Grading: Pass/Fail)

**ENV 486. SENIOR ENVIRONMENTAL SEMINAR. (1)** *Prerequisite:* Senior standing. Current environmental issues discussed by invited lecturers, including identification of possible careers in environmental fields.

**ENV 490. FOOD SAFETY. (3)** *Prerequisite:* 6 hours of Biology. Principles of food safety in the processing and distribution of milk and milk products, meat, shellfish and other foods, food borne illnesses and sanitation standards, surveillance and evaluation. Off-campus travel is required. Students must arrange own transportation for required field trips.

**ENV 491. INTERNSHIP IN ENVIRONMENTAL, HEALTH, AND SAFETY. (3 OR 6).** *Prerequisite:* Permission of instructor. Supervised experience in an organization, facility, industry, or business with EHS responsibilities. Assignments individually arranged. Off-campus travel required. (Grading: Pass/Fail)

**ENV 495. ENVIRONMENTAL MEASUREMENT. (3)** *Prerequisites:* ENV 280, 360, 410, 480. Includes environmental measurement methods for air, soils, and water analysis. Devices covered include: AA, GC/MS, XRF, PID, SEM, colorimetric tubes, and water quality instruments.

**EXED – EXCEPTIONAL EDUCATION  
SCHOOL OF TEACHER EDUCATION**

**EXED 200. THE CULTURE OF DISABILITY. (3)** Social and cultural perspectives on disabilities. Covers major types of disabilities, disability as a socially-constructed concept, images and stereotypes of disabilities within various cultures, and cultural norms that create barriers to individuals' participation in society.

**EXED 330. INTRODUCTION TO EXCEPTIONAL EDUCATION: DIVERSITY IN LEARNING. (3)** *Prerequisites:* EDU 250, FACS 192, MGE 275, AGED 250 or SEC 365; and either PSY 310 or FACS 191; or instructor permission. Characteristics of exceptionalism, special education programs, schools, and community resources and research relative to exceptionalism. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**EXED 331. EARLY CHILDHOOD EDUCATION FOR CHILDREN WITH DISABILITIES. (3)** *Prerequisites:* EXED 330 and LTCY 320. *Corequisites:* EXED 333 and EXED 432. Emphasis on services and supports for children from birth through five years old, with and without disabilities, and their families, including current intervention research. Field experiences in early childhood settings away from campus are required. Students are responsible for arranging their own transportation to and from assigned sites.

**EXED 332. INTERVENTION STRATEGIES FOR STUDENTS WITH MILD DISABILITIES. (3)** *Prerequisites:* EXED 331, 333, and 432. *Corequisites:* EXED 334, 422, 430 and 433. The student is taught to make appropriate choice/use of audio-visual media and adapted instructional materials in the content areas for individuals with mild disabilities. Field experiences in public schools and/or other appropriate settings away from campus required. Students are responsible for arranging their own transportation to designated or assigned sites.

**EXED 333. TRANSITION: SCHOOL TO ADULT LIFE. (3)** *Prerequisites:* EXED 330 and LTCY 320. *Corequisite:* EXED 331 and 432. Students are exposed to theory and practice of preparing individuals with disabilities to enter the world of work and independent adult citizenship. Field experiences in public schools and/or other appropriate settings away from campus are required. Students are responsible for arranging their own transportation to designated or assigned sites.

**EXED 334. FIELD-BASED PRACTICUM WITH INDIVIDUALS WITH DISABILITIES. (3)** *Prerequisites:* EXED 331, 333 and 432. *Corequisites:* EXED 332, 422, 430 and 433. Students interact with individuals with disabilities in classrooms and institutions via field experiences to discover the nature of exceptionalism, view programs, and make career decisions. Field experiences in public schools and/or other appropriate settings away from campus are required. Students are responsible for arranging their own transportation to designated or assigned sites.

## Course Descriptions

**EXED 415. PRESCRIPTIVE PROGRAMMING FOR INDIVIDUALS WITH SEVERE EMOTIONAL AND BEHAVIORAL DISORDERS (3)** *Prerequisite: EXED 334. Corequisites: EXED 416, 417, 418 and 431.* History of instructional models characteristics. Evaluation procedures for identification and instruction with individuals with severe emotional and behavioral disorders, autism, and other pervasive developmental disorders. Field experience in public schools and/or other appropriate settings away from campus are required. Students are responsible for arranging their own transportation to designated or assigned sites.

**EXED 416. FIELD-BASED PRACTICUM WITH INDIVIDUALS WITH MODERATE AND SEVERE DISABILITIES (3)** *Prerequisite: EXED 334. Corequisites: EXED 415, 417, 418 and 431.* Supervised practice in an appropriate setting for development of advanced intervention skills used with individuals with moderate and severe disabilities. Field experiences in public schools and/or other appropriate settings away from campus are required. Students are responsible for arranging their own transportation to designated or assigned sites.

**EXED 417. ASSESSMENT AND CURRICULUM I FOR STUDENTS WITH MODERATE/SEVERE DISABILITIES (3)** *Prerequisite: EXED 334. Corequisites: EXED 415, 416, 418 and 431.* Characteristics, problems and needs of individuals with moderate to severe disabilities. Curriculum and assessment models are evaluated; intervention strategies for both cognitive and social skills are designed. Field experiences in public schools and/or other appropriate settings are required in this course. Students are responsible for arranging their own transportation to designated sites.

**EXED 418. ASSESSMENT AND CURRICULUM II FOR STUDENTS WITH MODERATE/SEVERE DISABILITIES (3)** *Prerequisite: EXED 334. Corequisites: EXED 415, 416, 417 and 431.* This course builds upon EXED 417. Topics include routine/emergency medical procedures, physical management/handling, postural motor dysfunction, recreation, transition programming and modifications with language/vision/hearing impairments. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation in designated sites.

**EXED 419. ASSISTIVE TECHNOLOGY IN THE CLASSROOM AND COMMUNITY. (3)** *Prerequisite: EXED 330.* This class is designed to provide an overview of assistive technology and augmentative/alternate communication devices and their application in the special education classroom. This class will enable participants to develop sound and inclusive technology plans that meet the needs of students with moderate to severe disabilities.

**EXED 421. SPECIAL EDUCATION AND THE LAW: INTERPRETATION AND APPLICATION. (3)** *Prerequisite: EXED 334.* Focus is on laws and regulations and the education of children and youth with disabilities. Laws and regulations, the developments that led to them, and their implications for schools, students, and parents are discussed, analyzed, and applied to practical situations.

**EXED 422. COLLABORATION AND INCLUSION IN SCHOOL AND COMMUNITY SETTINGS. (3)** *Prerequisites: EXED 331, 333 and 432. Corequisites: EXED 332, 334, 430, 433.* The course provides an overview of methods which facilitate collaboration across disciplines to support diverse learners in regular classroom and community settings. Field experiences are required.

**EXED 430. DIAGNOSIS FOR INSTRUCTIONAL PLANNING: STUDENTS WITH MILD DISABILITIES. (3)** *Prerequisites: EXED 331 and 333, and 432. Corequisites: EXED 332, 334, 422 and 433.* This course will deal with the administration, scoring, and educational utilization of various diagnostic instruments designed to assist the teacher in developing an educational profile for the individual with school-related problems. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**EXED 431. LANGUAGE INTERVENTION: STRATEGIES AND MATERIALS. (3)** *Prerequisite: EXED 334. Corequisites: EXED 415, 416, 417 and 418.* An overview of language development is provided with emphasis placed on the educational remediation of language disorders. Focus is on the utilization of methods and materials which foster language development. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**EXED 432. APPLIED BEHAVIOR ANALYSIS. (3)** *Prerequisite: EXED 330. Corequisites: EXED 331 and 333.* Major emphasis is placed upon observing, analyzing and modifying the behavior of students. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**EXED 433. MODELS OF POSITIVE BEHAVIOR SUPPORT. (3)** *Prerequisites: EXED 331, 333 and 432. Corequisites: EXED 332, 334, 422 and 430.* Examines an array of models for supporting positive behavior changes in students. Field experience required.

**EXED 434. STUDENT TEACHING SEMINAR. (3)** *Prerequisite: Completion of all exceptional education coursework, admission to student teaching. Corequisite: EXED 490.* This course is designed to serve as a pre-student teaching experience to allow a student to integrate the process of diagnostic-prescriptive teaching. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**EXED 490. STUDENT TEACHING: EXCEPTIONAL EDUCATION. (10)** *Corequisites: Admission to teacher education; admission to student teaching; completion of EDU 250 and EXED 330 with grades of "B" or higher; and completion of the following courses with grades of "C" or higher: MATH 211, 212, LME 448, and LME 318 or 407.* Supervised assignment in approved school setting. Must complete a minimum of sixteen weeks in one or two placements depending on certification requirements. Students follow the academic calendar of the school district in which they are placed and are responsible for providing their own transportation to assigned site(s).

### EXS – EXERCISE SCIENCE

#### DEPARTMENT OF KINESIOLOGY, RECREATION AND SPORT

**EXS 122. FOUNDATIONS OF KINESIOLOGY. (3)** An introductory study of the historical, philosophical, and scientific foundations of physical education. Equivalent to PE 122.

**EXS 223. HEALTH RELATED FITNESS-EXERCISE SCIENCE. (3)** *Prerequisite: Declared Exercise Science major.* Foundation of knowledge and practice in components of physical fitness. Aerobic conditioning, and musculoskeletal strength, endurance, and flexibility will be explored.

**EXS 296. PRACTICUM IN EXERCISE SCIENCE. (3)** *Prerequisites: EXS 223 and a declared Exercise Science major.* Work experience in Exercise Science practical settings in progression towards completion of the major. Must be repeated for a maximum of 4 hours taken twice with each practicum experience in a different subfield of Exercise Science. Liability insurance required. (Grading: Pass/Fail)

**EXS 311. PHYSIOLOGY OF EXERCISE. (3)** *Prerequisites: BIOL 131 and EXS 223 or permission of instructor.* A systemic study of the acute and chronic effects of exercise on the physiological function of the human body.

**EXS 312. BASIC ATHLETIC TRAINING. (3)** *Prerequisite: PE 311 or EXS 311 and junior status.* A study of the basic principles of athletic training including prevention, evaluation, care, and rehabilitation of athletic injuries. Equivalent to PE 312.

**EXS 313. MOTOR LEARNING AND CONTROL. (3)** *Prerequisites: MATH 116 and EXS 223 and declared Exercise Science major and junior standing.* Designed to help build a foundation of knowledge and practice in the theoretical and conceptual basis behind human acquisition and performance of motor skills. The goal of the course is to understand how the individual, motor skill, and environment work together when learning novel or improving previously learned motor skills.

**EXS 324. EVALUATION IN PHYSICAL EDUCATION. (3)** *Prerequisites: MATH 116 and EXS 223 and declared Exercise Science major and junior standing.* A study of measurements utilized to evaluate the cognitive, affective, and psychomotor dimensions of school-age physical education students. Also, information for exercise specialists. Equivalent to PE 324.

**EXS 325. APPLIED EXERCISE PHYSIOLOGY. (3)** *Prerequisites: EXS 311 and CHEM 109 or higher and declared Exercise Science major.* Applied concepts introduced in exercise physiology and kinesiology. Aspects of the human body's reaction to differing exercise stressors. Emphasis on metabolic, musculoskeletal, and cardiorespiratory systems. Laboratory and field experience applying theoretical concepts of exercise physiology and kinesiology.

**EXS 412. EXERCISE TESTING & PRESCRIPTION. (4)** *Prerequisites: EXS 311 and declared Exercise Science major.* Study and field experience in developing principles and practices of physical fitness in the private and corporate sector for the general population and special populations.

**EXS 420. CLINICAL EXERCISE PHYSIOLOGY. (4)** *Prerequisite: EXS 325; declared Exercise Science major.* Principles of the clinical aspects of exercise physiology. Focuses primarily on the use of exercise in the treatment and diagnosis of various disease states, screening in risk stratification, and the ability to recognize and respond to emergency procedures.



**EXS 425. EXERCISE BIOENERGETICS. (3)** *Prerequisites: CHEM 109 or higher and EXS 325 and declared Exercise Science major.* Study of exercise metabolism during physical activity. Includes metabolic utilization of carbohydrates, fats, and proteins during anaerobic and aerobic exercise.

**EXS 436. PRINCIPLES OF STRENGTH AND CONDITIONING. (3)** *Prerequisite: EXS 325 and declared Exercise Science major.* Designed to develop knowledge of principles and practices in components of strength and condition. The aim of the course is to understand the process behind development, implementation, and evaluation of strength and conditional programs for elite, collegiate, high school, and/or recreational athletic populations.

**EXS 446. BIOMECHANICS. (4)** *Prerequisites: BIOL 131 and MATH 116 and declared Exercise Science major and senior status.* Designed to help build a foundation of knowledge and practice in the theoretical and conceptual basis of human movement. The goal of the course is to understand the influence of rigid-body mechanics on human movement and how manipulations of mechanical factors alter human movement. The secondary goal is to learn to quantitatively analyze human movement.

**EXS 455. EXERCISE AND AGING. (3)** *Prerequisite: Permission of instructor.* Designed for students to gain a better understanding of the acute physiological responses and chronic adaptations associated with exercise in the aged population and the role of exercise in the aging process. Specific attention will be given to the mitigating role of exercise in certain diseases and disorders.

**EXS 485. EXERCISE SCIENCE STUDY ABROAD. (1-3)** *Prerequisite: Must be in good standing, and obtain approval from the instructor.* An exploration of the international offerings pertaining to the study of exercise science and sports medicine. Study abroad courses require travel to various international locations. Specific course offerings will be announced prior to the semester in which travel occurs. May be repeated for a maximum of six hours.

**EXS 496. INTERNSHIP IN EXERCISE SCIENCE. (6)** *Prerequisite: EXS 296 and EXS 412 (pre or corequisite) and declared Exercise Science major.* Comprehensive practical experience in a selected Exercise Science environment. Development of practical skills with on-the-job experience. Students will be responsible for their own transportation to designated or assigned sites.

**FACS– FAMILY AND CONSUMER SCIENCES**  
**DEPARTMENT OF FAMILY AND CONSUMER SCIENCES (FACS)**  
**DEPARTMENT OF LIBERAL ARTS AND SCIENCES**

**FACS 111 / 111C. HUMAN NUTRITION. (3)** Study of nutrients essential to human life and well-being. Nutrients are studied relative to their function in metabolism, sources in food, and relationship to health. [GEN ED F]

**FACS 150. GOURMET FOODS. (3)** An introduction to principles and aesthetics of food preparation characteristic of American and other cuisines of the world. Preparation of food and table service for different types of meal functions is involved. (course fee)

**FACS 151. FOOD SCIENCE. (3)** Introduction to the study of the basic principles of food science as they apply to food preparation. Food components including composition, palatability, flavor, color, texture, and safe food handling practices are studied and evaluated. Application of principles include preparation and evaluation of food products. (course fee)

**FACS 152. FOOD SERVICE SANITATION. (1)** *Corequisite: FACS 251.* National Restaurant Association ServSafe sanitation course. Examines the causes and prevention of foodborne illness in food service operations. Covers proper food handling to include receiving, storage, preparation, and holding of food. Proper cooking and storage temperatures will be stressed. Students must pass the ServSafe National Certification Exam to successfully complete this course.

**FACS 170. INTERNATIONAL CUISINE AND CULTURE. (3)** Focuses on the history, culture, customs and cuisines of countries from around the world. The laboratory component includes preparation of a variety of international recipes. (course fee) [GEN ED E]

**FACS 171. INTRODUCTION TO MANAGEMENT IN THE HOSPITALITY INDUSTRY. (3)** Study of the evolution of the hospitality industry. Organizational systems and management career potentials are examined. Hospitality services are viewed from both consumer and business perspectives.

**FACS 180. FOUNDATIONS IN FAMILY AND CONSUMER SCIENCES. (3)** Overview of interdisciplinary field of family and consumer sciences, including professional organizations and philosophy of education and service. Emphasizes the culture of the scholar.

**FACS 191. CHILD DEVELOPMENT. (3)** Study of the prenatal and postnatal factors that influence the physical, cognitive, language, social and emotional development of children. Implications and applications of concepts learned are stressed. Practical experiences provided in a field setting; students are responsible for arranging their own transportation.

**FACS 192. WORKING WITH YOUNG CHILDREN AND FAMILIES. (3)** An introductory course for persons interested in providing services for infants, toddlers, and preschool-age children, both with and without disabilities, and their families. Practical experiences provided in a field setting; students are responsible for providing their own transportation.

**FACS 193. CURRICULUM DEVELOPMENT FOR YOUNG CHILDREN. (3)** *Prerequisite: FACS 294; restricted to IECE majors.* Overview of curriculum and activities that are developmentally appropriate for diverse groups or individual children. Practical experiences provided in a field setting; students are responsible for providing their own transportation.

**FACS 198. GUIDANCE AND PROBLEM-SOLVING APPROACHES FOR YOUNG CHILDREN. (3)** *Prerequisite: FACS 191 or permission of instructor.* Examines developmentally appropriate guidance and problem-solving approaches for young children based on theoretical and evidence-based practices. Child-centered approaches for addressing typical problems found in early childhood settings will be addressed. Field hours are required; students are responsible for their own transportation.

**FACS 251. COMMERCIAL FOOD PREPARATION. (3)** *Prerequisite: FACS 151. Corequisite: FACS 152.* Study and application of commercial food preparation processes including selection, storage, presentation of food products, and the effective utilization of resources. Students must pass the National Restaurant Association Food Sanitation Certification Examination and become CPR certified to receive credit for this course. (course fee)

**FACS 252. HOSPITALITY INFORMATION TECHNOLOGY. (3)** *Prerequisite: Restricted to hospitality management and dietetics majors.* Study of computer applications in hotel, restaurant, and tourism management and dietetics. Topics include computer programs generic to the hospitality industry such as spreadsheets, word-processing, reservation systems, accounting systems, nutritional analysis, etc.

**FACS 261. ADVANCED NUTRITION. (3)** *Prerequisites: FACS 111, BIOL 131 and CHEM 105 or 109. Corequisite: CHEM 107 (only when chemistry selections include CHEM 105).* Study of nutrients and their function in the human body. Includes analysis of nutritional status and nutrient intakes of individuals and their relationship to health.

**FACS 271. TOURISM PLANNING AND DEVELOPMENT. (3)** Study and evaluation of travel and tourism and the economic and cultural impact on society. Examination of the forces which influence domestic and international tourism. Component parts of tourism management and interrelationship of meeting planning, travel systems, food and lodging systems, and tourist attractions are reviewed. Possible field trips at student's expense.

**FACS 275. RESTAURANT MANAGEMENT. (3)** *Prerequisite: FACS 171 or permission of instructor.* Identifies the crucial elements involved in the successful operation of a restaurant and how they interrelate. Students are taken through the process of creating a concept, developing a menu, budgeting and controlling costs, staffing the restaurant, purchasing food and equipment, bar and beverage management, daily operations and developing a marketing plan. Includes online "virtual field trips."

**FACS 276. LODGING OPERATIONS. (3)** *Prerequisite: FACS 171 or FACS 271 or permission of the instructor.* Study of hotel and lodging operations, including detailed descriptions and analyses of the functions of both revenue-generating and support departments, as well as staffing needs and model position descriptions. Includes online "virtual field trips."

**FACS 292. DIVERSITY IN EARLY CHILDHOOD PROGRAMS. (3)** *Prerequisite: FACS 191.* This course focuses on developing and enhancing the knowledge and skills to work with children and families from diverse developmental, cultural, racial, and socio-economic backgrounds. The exploration of the challenges families face in living in a diverse society and who have a child with special needs will also be reviewed. Implications of diversity for practice with various populations are emphasized throughout the course. Influential theories and relevant research for professionals working with young children and families are discussed.

**FACS 294. ASSESSMENT OF YOUNG CHILDREN. (3)** *Prerequisites: FACS 191 or instructor permission.* Overview of the assessment process, preliminary assessment skills, and using assessment results in planning for guidance/instruction of young children. Roles of the family in the assessment process emphasized. Practical experiences provided in a field setting; students are responsible for providing their own transportation.

## Course Descriptions

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**FACS 295. CURRICULUM DEVELOPMENT FOR INFANTS AND TODDLERS. (3)** *Prerequisite: FACS 294.* Overview of developmentally appropriate curriculum and activities for all infants and toddlers, individually and in groups. Practical experiences in a field setting; students are responsible for providing their own transportation.

**FACS 296. CURRICULUM DEVELOPMENT FOR PRESCHOOL AND KINDERGARTEN CHILDREN. (3)** *Prerequisite: FACS 294.* Overview of curriculum and activities that are developmentally appropriate for diverse groups or individual preschool/kindergarten children. Practical experiences provided in a field setting; students are responsible for providing their own transportation.

**FACS 297. FAMILY, COMMUNITY AND EARLY CHILDHOOD PROGRAM. (3)** An introduction to the skills and appropriate techniques of establishing positive relationships with families of young children and involving them in the early childhood program planning, implementation, and evaluation. Skills and techniques for building community partnerships and advocating for young children are addressed. Practical experiences provided in a field setting. Students are responsible for providing their own transportation.

**FACS 299. ADMINISTRATION OF EARLY CHILDHOOD PROGRAMS. (3)** *Prerequisites: FACS 294 or permission of instructor.* Principles and practices in organization and management of developmentally appropriate early childhood programs. Includes managing physical, personnel, fiscal, curricular, agency, community, and family resources. At least 12 field-based hours will be required in addition to regular course meetings. Students are responsible for arranging their own transportation.

**FACS 310. MANAGEMENT OF FAMILY RESOURCES. (3)** Study of consumer and marketplace interactions in the purchase of goods and services. Decision-making processes are applied to individual and family resources for achieving maximum personal satisfaction.

**FACS 311. FAMILY RELATIONS. (3)** *Prerequisites: Junior standing.* Study of issues affecting individual and family well-being. Interpersonal relationships and communication skills necessary to achieve quality of life are addressed.

[GENED C]

**FACS 313. PRACTICUM IN HUMAN ENVIRONMENT. (3)** Supervised work experience for a fixed period of time. Students perform professional functions with a pre-approved, cooperating organization. Field experience.

**FACS 351. HUMAN RESOURCE MANAGEMENT IN THE HOSPITALITY INDUSTRY. (3)** *Prerequisite: FACS 251.* Study of management and human resource systems common to the hospitality industry. Case studies, role plays, and simulations are used to examine management and human resource problems unique to hotels, restaurants, and institutions.

**FACS 353. MENU PLANNING AND PURCHASING. (3)** *Prerequisite: FACS 251.* Study of menu planning and merchandising to meet the needs of various target markets. Includes analysis of food and equipment specifications, purchasing methods, and pricing strategy. Possible field trip at student's expense.

**FACS 354. COST CONTROL AND FINANCIAL ANALYSIS IN THE HOSPITALITY INDUSTRY. (3)** *Prerequisites: FACS 252 and ACCT 200.* Study of the financial aspects of hospitality operations to include budgeting, forecasting, financial analysis, food and labor costs, beverage control, inventory control, and the Uniform System of Accounts for Hotels and Restaurants.

**FACS 361. LIFE STAGE NUTRITION. (3)** *Prerequisite: FACS 261.* Study of nutrition needs of individuals in the various stages of the life cycle. Review of public and private enterprises involved in the delivery of nutrition services. Course requires off-campus experiences for which students are responsible for transportation and related activities and expenses.

**FACS 362. MEDICAL NUTRITION THERAPY I. (4)** *Prerequisites: FACS 361 and CHEM 304 or CHEM 109.* Study of the scientific principles of human nutrition in relation to health and disease. Emphasis is placed on nutritional assessment and planning of nutrition intervention strategies for specific disease conditions.

**FACS 364. SPORTS NUTRITION. (3)** *Prerequisite: FACS 111.* Includes determination of optimum carbohydrate, protein, fat, vitamins, minerals, and fluid intake of athletes for health and performance; evaluation of supplements and nutrition information for athletes. For those interested in working with athletes and their diets.

**FACS 365. COMMUNITY NUTRITION. (3)** *Prerequisite: FACS 111.* Review of community resources and delivery of nutrition education, to include diverse populations. Field experiences will be required. Students are responsible for their own transportation.

**FACS 367. NUTRITION IN AGING. (3)** *Prerequisite: FACS 111 or permission of the instructor.* Explores the nutritional needs of the aging adult, focusing on the various disease states and their nutritional ramifications. The nutritional implications for demographic groups in the aging population, and issues related to eating, pharmacology and physical activity in the elderly will also be reviewed. Field experiences will be required; students are responsible for their own transportation.

**FACS 368. DIETARY AND HERBAL SUPPLEMENTS. (3)** *Prerequisite: FACS 111 or permission of instructor.* Current topics related to dietary supplements. Regulatory guidelines and issues related to production, marketing, safety, and efficacy are addressed.

**FACS 371. LODGING MANAGEMENT. (3)** *Prerequisites: FACS 313 and ACCT 200.* Study of lodging facilities and the services provided throughout the guest cycle. Included are the analysis of front desk operations, front office management, marketing, reservations, data processing, guest services, security, executive housekeeping, and night auditing. Field trip at student's expense.

**FACS 373. HOSPITALITY AND TOURISM MARKETING. (3)** *Prerequisites: FACS 271, MKT 220.* Examines the scope and implementation of specialized marketing activities across a range of private and public sector organizations in the hospitality and tourism industry. Focuses on the conceptualization, design, delivery and evaluation of marketing plans for hospitality and tourism organizations. The development of a comprehensive marketing plan is a major component of this course.

**FACS 375. MEETING AND CONVENTION MANAGEMENT. (3)** *Prerequisite: Junior standing or permission from the instructor.* Management and operation of conventions, meetings, trade shows and exhibitions for both profit and non-profit organizations. Emphasizes program planning, budgeting, contracts, marketing, public relations, site and facility selection, exhibit planning and marketing, transportation, food and lodging arrangements, and career opportunities. A convention/meeting planning project will be required for successful completion of the course.

**FACS 378. LEGAL ENVIRONMENT OF HOSPITALITY AND TOURISM. (3)** *Prerequisites: FACS 275 and FACS 276 or permission of instructor.* Study of legal aspects of hospitality and tourism operations including legal relationships with guest and other patrons, food and beverage liability, employment, negligence and contracts.

**FACS 380. PROFESSIONAL PRESENTATION TECHNIQUES IN FAMILY AND CONSUMER SCIENCES. (3)** *Prerequisite: Major or minor in Family and Consumer Sciences.* Includes demonstrations and use of varied technology in teaching family and consumer sciences content. Lecture – field trips at student's expense.

**FACS 381. METHODS AND MATERIALS IN FAMILY AND CONSUMER SCIENCES EDUCATION. (3)** *Prerequisites: (a.) Junior standing in Family and Consumer Sciences Education or Dietetics; and (b.) FACS 380 Communication Techniques in Family and Consumer Sciences; and (c.) EDU 250 for FCS Ed majors, or consent of instructor.* A study of family and consumer sciences curriculum patterns including objectives, methods of planning and presentation, laboratory organization, home and community projects, instructional materials, evaluation, and federal and state legislation for vocational education and family and consumer sciences.

**FACS 391. RISK AND RESILIENCE. (3)** *Prerequisite: FACS 191 or permission of instructor.* Focuses on the development of social and emotional skills as they relate to resilience in children. Risk factors will be explored. Field experiences will be required. Students are responsible for their own transportation.

**FACS 393. ROLE OF PLAY IN CHILD DEVELOPMENT. (3)** *Prerequisite: FACS 191.* Theoretical and empirical perspectives connecting play to children's learning and development will be examined. Students will examine the role of play in relation to brain development.

**FACS 395. CHILD AND FAMILY STRESS. (3)** *Prerequisites: Junior standing or permission of instructor.* Acquaint students with major concepts from the research and conceptual literature on family stress and resilience. Examines stress as experienced and perceived by children and their families. Factors that influence children's coping with stress are emphasized.

**FACS 396. ADOPTION THEORIES AND RESEARCH. (3)** *Prerequisite: Junior standing.* Review of theories and research underlying practice with families and children who have been adopted. Offers an understanding of challenges, risks, and opportunities related to adoptive and birth families. Types and critical issues of adoption will be reviewed.

**FACS 399. IMPLICATIONS OF RESEARCH IN FAMILY AND CHILD STUDIES. (3)** *Prerequisite: SOC 300 or permission of instructor.* Explores the processes and implications of research related to family and child studies. Students will gain understanding and develop skills needed to be consumers of scientific literature.

**FACS 410. INTERNSHIP. (1-9)** *Prerequisites: Senior standing and all required 300-level courses in the major.* Application of knowledge and skills in a supervised experience. Students perform professional functions in an appropriate establishment. (Note: Application must be submitted to coordinator of the Internship Program one complete semester prior to the semester a student plans to do the practicum. A 2.5 grade point average in professional courses is required for eligibility.) (Repeatable to maximum of 6 hours)

**FACS 411. SPECIAL TOPICS IN CONSUMER AND FAMILY SCIENCE. (1-3)** *Prerequisite: Approval of the head of the department.* Individual investigation of problems selected from an area of specialization within the department. (Repeatable for credit.)

**FACS 452. QUALITY AND SERVICE MANAGEMENT IN THE HOSPITALITY INDUSTRY. (3)** *Prerequisites: Senior standing and MGT 210.* Study and analysis of service delivery systems for the hospitality industry with particular emphasis on implementing a consumer-driven, top-down, policy-oriented, quality service program. Possible field trip at student's expense.

**FACS 459. SENIOR SEMINAR IN HOSPITALITY MANAGEMENT AND DIETETICS. (1)** *Prerequisites: FACS 354 or FACS 362 and senior standing.* Course prepares senior Hospitality Management and Dietetics students to assume leadership positions in their career fields. The class will provide a forum where students focus on career, leadership, ethics and lifelong learning and will also provide students an opportunity to debate relevant industry issues. (Grading: Pass/Fail)

**FACS 461. APPLICATION OF NUTRITION THEORY AND RESEARCH. (3)** *Prerequisite: FACS 261.* Application of classic and contemporary theory in the identification and analysis of problems in the practice of nutrition. Provides the student with a research knowledge base specific to dietetic practice.

**FACS 462. MEDICAL NUTRITION THERAPY II. (4)** *Prerequisite: FACS 362.* Continued study of the analysis of the scientific principles of human nutrition in relation to health and disease. Emphasis is placed on intervention strategies for specific disease conditions and disorders. Includes laws, regulations and standards related to dietetic practice.

**FACS 464. APPLIED INSTITUTION MANAGEMENT. (3)** *Prerequisite: Senior standing.* Application of methods in institutional management of foodservice operations and nutritional care. Lecture, one hour; practicum, ten hours per week minimum. Course requires off-campus experiences for which students are responsible for transportation and related activities and expenses.

**FACS 470. ADVANCED LODGING MANAGEMENT. (3)** *Prerequisites: ACCT 200 and FACS 276 or permission of instructor. Corequisite: FACS 472.* Study of ethical decision making, risk management, preparation and analysis of financial information, feasibility studies and trends in the lodging industry.

**FACS 471. CATERING AND BEVERAGE MANAGEMENT. (3)** *Prerequisites: FACS 313, 353, 354, and senior standing.* Study and application of principles of catering including planning, purchasing, storing, preparing, and presenting food and beverages. An in-depth review of wines, spirits, beers, and beverage equipment will be included.

**FACS 472. STRATEGIC MANAGEMENT IN THE HOSPITALITY INDUSTRY. (3)** *Prerequisites: FACS 313, 354, MKT 220, and senior standing. Corequisite: FACS 470.* Study and analysis of complex business problems in the hospitality industry. Identification of problems, generation of alternatives, and the implementation of effective business and corporate strategies are emphasized.

**FACS 481. ADVANCED METHODS IN FAMILY AND CONSUMER SCIENCE EDUCATION. (3)** A study of the background and trends in education for improving family and consumer sciences. Career and Tech Ed training for high school youth and adults including an understanding of state and federal accountability requirements. Emphasis on working with persons with diverse backgrounds. Lecture- field trips at student's expense.

**FACS 482. RESOURCE MANAGEMENT FOR THE INDIVIDUAL AND FAMILY. (3)** *Prerequisite: Junior standing in family and consumer sciences.* A study of the factors affecting the management of the home in meeting the needs of individuals and creating a satisfying environment for the family. Special consideration is given to those problems involving the use of time, energy, and money. Lecture—field trips at student's expense. Curriculum changes in process. See FCS advisor.

**FACS 491. SEMINAR IN FAMILY ECONOMICS. (1)** *Prerequisite: Senior standing.* Current literature in family and consumption economics are studied and discussed. Curriculum changes in process. See FCS advisor.

**FACS 492. GROWTH AND GUIDANCE OF CHILDREN. (3)** *Prerequisites: FACS 191 and PSY 100.* Study of the biological, physical, social-emotional, and cognitive needs of infants and school-aged children. The strategies by which these needs may be met within the family, the school, and other environments are discussed.

**FACS 493. FAMILY LIFE EDUCATION. (3)** Study of the various professional and educational perspectives regarding family life education. Principles and practices within the field are analyzed and compared.

**FACS 494. PARENTING STRATEGIES. (3)** Study of the major theoretical and practical approaches to effective parenting strategies within functional families. Emphasis is placed on practicing techniques and skills which are developmentally appropriate for different ages of children.

**FACS 495. INTERPERSONAL/ RELATIONSHIP VIOLENCE. (3)** *Prerequisite: One course in Human Development or Family Relations.* A study of the dynamics underlying interpersonal violence and theoretical perspectives regarding the etiology of violent behavior. Analysis of behaviors indicative of violent relationships and various treatment modalities as they are applied to individuals and families are emphasized.

**FACS 496. ADDRESSING CHALLENGING BEHAVIOR IN YOUNG CHILDREN. (3)** *Prerequisite: FACS 492 or instructor permission.* Examination of young children's challenging behaviors and strategies for developing behavior support plans across settings. Practical experiences in a field setting; students are responsible for providing their own transportation.

**FACS 497. FAMILY HOME VISITING. (3)** *Prerequisites: FACS 395 or FACS 494 or permission of instructor.* Focuses on the design, implementation, and effects of human service programs aimed at promoting service provision in a variety of settings. Review of best practice, policy and research with families and young children in natural environments. Field experience hours required. Student is responsible for transportation.

**FACS 499. ISSUES IN FAMILY AND CHILD STUDIES. (3)** *Prerequisite: Senior-level standing.* An examination of the place of family and child studies in the context of broader themes, such as policy and varying social and economic climates. This course is designed to integrate research, theory, and practice, applying former education to a variety of family and child issues.

#### FILM

#### SCHOOL OF JOURNALISM & BROADCASTING

**FILM 201. INTRODUCTION TO THE CINEMA. (3)** A study of the basic elements and techniques of the film medium, designed to increase the student's understanding and appreciation of the motion picture both as a communication medium and as an art form. A number of film masterpieces will be viewed and analyzed. Lecture and lab.

**FILM 369. INTRODUCTION TO WORLD CINEMA. (3)** *Prerequisite: FILM 201 or permission of instructor.* Examines cinema in several regions including China, India, Europe, Middle East, Africa, and Latin America. Viewing of representative films accompanied by background readings on history/culture.

**FILM 399. SPECIAL TOPICS IN FILM. (3)** A detailed study of special topics in film.

**FILM 482. FILM PRODUCTION WORKSHOP. (2)** *Prerequisite: FILM 201.* Intensive, hands-on workshop in the production of short-form cinema. Specific focus of study to be determined in consultation with instructor. Emphasis on techniques and strategies relevant to producing independent film and video. May be repeated three times for additional credit.

**FILM 483. FILM STUDIES SEMINAR. (2)** *Prerequisites: At least 18 hours completed in the film major and senior standing.* Intensive study in an area of film history, theory, and genres. Specific focus of study to be determined in consultation with instructor. Emphasis on independent research and writing. May be repeated once for additional credit.

**FILM 485. SENIOR SEMINAR. (1)** *Prerequisite: Film majors with senior standing.* Synthesis and assessment of complete field of study for film majors, including exploration of career and graduate studies opportunities.

#### FIN/FINC – FINANCE

#### DEPARTMENT OF FINANCE (FIN)

#### DEPARTMENT OF LIBERAL ARTS AND SCIENCES (FINC)

**FIN 161/FINC 161C. PERSONAL FINANCE. (3)** Designed to serve the personal finance needs of students regardless of their major fields. Practical applications in personal and family financial planning, including credit, buying, borrowing, banking, insurance, investments, taxation, estate planning and home ownership. [GEN ED C]



## Course Descriptions

**FIN 330. PRINCIPLES OF FINANCIAL MANAGEMENT. (3)** *Prerequisites:* ACCT 200, MATH 116, and ECON 202 or 203. Covers basic concepts and techniques in corporate finance and investments. Topics include asset valuation, time value of money, capital budgeting, financial statements and international finance.

**FIN 331. APPLIED INVESTMENTS. (3)** *Prerequisite:* FIN 330. Covers the basics of investing, emphasizing the management of personal investments, such as stocks, bonds and mutual funds. Utilizes investment-related web sites.

**FIN 332. INVESTMENT THEORY. (3)** *Prerequisite:* FIN 330. An examination is made of investment institutions, market mechanics and investment media. The course deals with the setting of investment objectives, portfolio building and the problems of selection and timing.

**FIN 350. RISK MANAGEMENT AND INSURANCE. (3)** *Prerequisite:* FIN 330. Fundamental principles of risk and insurance and their application to risk situations. Provides the basic knowledge for intelligent solution of personal and business risk problems.

**FIN 370. PRINCIPLES OF REAL ESTATE. (3)** *Prerequisite:* FIN 330. Deals generally with urban real estate with emphasis on principles and practices of the real estate business.

**FIN 430. SELECTED TOPICS-FINANCE. (3)** *Prerequisites:* FIN 330 and *permission of Instructor.* Conducted at selected times covering special topics of current interest to finance students. Class format varies with instructor.

**FIN 433. MONEY AND CAPITAL MARKETS. (3)** *Prerequisite:* FIN 330. An examination of the behavior of U.S. and world financial markets with a special emphasis on interest rate theories, funds flows, and the role of financial institutions in these markets.

**FIN 435. COMMERCIAL BANK MANAGEMENT. (3)** *Prerequisite:* FIN 330. Study of the financial management of commercial banks. Emphasis is on asset/liability management and the financial analysis of bank statements.

**FIN 436. INTERNATIONAL FINANCIAL MANAGEMENT. (3)** *Prerequisite:* FIN 330. An examination of the international dimension of corporate finance. Topics covered include environment of international financial management, foreign exchange risk management, foreign investment analysis, and financing foreign operations.

**FIN 437. CORPORATE ASSET MANAGEMENT. (3)** *Prerequisites:* Completion of FIN 330 with a grade of "C" or better and completion of, or current enrollment in, ECON 307. Advanced level exposure to valuation concepts, capital budgeting decisions, working capital management, and mergers and acquisitions. Deals with the current theory and practice of corporate finance in these areas.

**FIN 438. CORPORATE FUNDS MANAGEMENT. (3)** *Prerequisites:* Completion of FIN 330 with a grade of "C" or better and completion of, or current enrollment in, ECON 307. Advanced level exposure to financing and dividend policy, short-, intermediate-, and long-term financing, and financial statement analysis. Deals with the current theory and practice of corporate finance in these areas.

**FIN 439. SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT. (3)** *Prerequisite:* FIN 332 with a grade of "C" or better. An advanced level exposure to fixed income and equity security valuation, and the theory and practice of portfolio management.

**FIN 440. INTERNSHIP IN FINANCE. (3)** *Prerequisites:* FIN 330 and admission to departmental cooperative program. Supervised work with a cooperating organization that provides financial services and products to the public. (Grading: Pass/Fail)

**FIN 441. ENTREPRENEURIAL FINANCE. (3)** *Prerequisite:* FIN 330. This course focuses on gaining understanding of the financing of entrepreneurial ventures, including ways entrepreneurs identify and commit the necessary resources to create and finance their ventures.

**FIN 444. RETIREMENT PLANNING. (3)** *Prerequisite:* FIN 330. Emphasizes the practical knowledge needed for choosing the best financial plan and designing a retirement plan that will meet a client's needs from a tax, retirement, and financial planning standpoint.

**FIN 445. ESTATE PLANNING. (3)** *Prerequisite:* FIN 330. Survey of financial planning, estate and gift tax planning, the unified estate and gift tax system, and the transfer of property through trusts and wills.

**FIN 449. PRACTICUM IN PORTFOLIO MANAGEMENT. (3)** *Prerequisite:* FIN 332 with a grade of "C" or better and permission of instructor. Practical experience in managing an investment portfolio in a teamwork environment. Emphasis placed on Economics, Industry, and Company analysis, security selection, report preparation, daily decision making, record keeping and performance evaluation. Students will be responsible for making all material decisions in managing an actual investment portfolio of real funds. (Special Information: May be repeated for credit.)

**FIN 499. SENIOR ASSESSMENT IN FINANCE. (1)** *Prerequisites:* Senior standing, enrolled in last regular semester of course work (summer graduates would take this course in the spring semester prior to completion.) This course is designed to be a tool in the senior assessment process. It is designed to provide a means of conducting assessment of Finance majors. The course will seek to measure knowledge of basic ideas and concepts necessary of Finance graduates. Students will also be introduced to educational and career opportunities and professional certification programs available in Finance.

### FLK / FOLK – FOLK STUDIES DEPARTMENT OF FOLK STUDIES AND ANTHROPOLOGY (FLK) DEPARTMENT OF LIBERAL ARTS AND SCIENCES (FOLK)

**FLK 276. INTRODUCTION TO FOLK STUDIES. (3)** An introduction to the study of folk tradition in different contexts, focusing on the concepts of folk group, cultural relativism, fieldwork, meaning and function, and the genres of folk narrative, folksong, folk custom and traditional material culture.

**FLK 277. INTRODUCTION TO WORLD MUSIC. (3)** A cultural and functional analysis of traditional musical genres developed in world areas: Africa, America, Asia, Europe and Oceania. Emphasis will be placed on musical styles, performance practices, aesthetics, and instruments. Equivalent to ANTH 277/MUS 277. [GEN ED E]

**FLK 280 / FOLK 280C. CULTURAL DIVERSITY IN THE U.S. (3)** Understanding, interpretation and appreciation of the multicultural nature of American society. Emphasis on the varieties of cultural expression, custom and world view practiced by regional, ethnic, racial and sectarian cultures. [GEN ED E]

**FLK 281. ROOTS OF SOUTHERN CULTURE. (3)** Examination of Southern folklore and folklife as part of the foundation of contemporary Southern culture.

**FLK 310. COMMUNITY TRADITIONS & GLOBAL CORPORATE CULTURE. (3)** Multicultural study of community traditions and corporate culture in the global world.

**FLK 340. PEOPLES AND CULTURES OF LATIN AMERICA. (3)** Study of the history and development of present cultures in Latin America with emphasis on economics, politics, religion, folklife and world view of indigenous, peasant and urban peoples. Equivalent to ANTH 340.

**FLK 342. PEOPLES AND CULTURES OF THE CARIBBEAN. (3)** Examination of the variety of cultural practices and social conditions found in modern-day Caribbean societies with attention to historical roots. Topics include, but are not limited to, definition of the region, religious practices, festivals, musical traditions, migration, and everyday social life and conditions. Equivalent to ANTH 342.

**FLK 345. PEOPLE AND CULTURES OF NATIVE NORTH AMERICA. (3)** Survey of the cultures of the original peoples of North America, with emphasis on the ethnographic present. Equivalent to ANTH 345.

**FLK 350. PEOPLES AND CULTURES OF AFRICA. (3)** Survey of the cultures of Africa, with emphasis on historical development and contemporary cultural diversity. Equivalent to ANTH 350. [GEN ED E]

**FLK 371. URBAN FOLKLORE. (3)** Varieties and characteristics of urban American folklore with emphasis on legends, customs, beliefs, and other lore of today's regional, occupational, and ethnic groups. [GEN ED C]

**FLK 373. FOLKLORE AND THE MEDIA. (3)** Variety and characteristics of folklore in the media including newspapers, television, magazines, comics, movies, photographs, cartoons, and advertisements.

**FLK 375. SUPERNATURAL FOLKLORE. (3)** An investigation of traditional beliefs concerning unverifiable phenomena, including superstition, traditional healing, divination, and witchcraft. Current historical, philosophical, anthropological and folkloristic theories are covered.

**FLK 377. AFRICAN-AMERICAN FOLKLIFE. (3)** Oral, written, and material folk traditions of African-Americans, with emphasis on the United States and the Caribbean. [GEN ED E]

**FLK 378. SOUTHERN APPALACHIAN FOLKLIFE. (3)** Folklife of southern Appalachia, as reflected in the material folk culture, in traditional folk customs and practices, legends, anecdotes, songs, language, and literature. Equivalent to ANTH 378.

**FLK 379. TOPICS IN FOLKLORE. (3)** A consideration of special topics to acquaint students with significant problems and current issues in folklore. Content will vary from time to time according to the instructor and the needs of the students.

**FLK 380. EUROPEAN FOLKLIFE. (3)** An ethnological survey of the historical background and contemporary presence of regional cultures in Europe. Emphasis on the relationship between traditional folklife and art, music, literature, and custom.

**FLK 399. FIELD METHODS IN ETHNOGRAPHY. (3)** An examination of the history, theory, techniques, and ethics of ethnographic fieldwork, including practical fieldwork experience. Equivalent to ANTH 399.

**FLK 400. ETHNOMUSICOLOGY. (3)** Survey of the concepts and methods of ethnomusicology. Topics include history of ethnomusicology, transcription and analysis, musicians, musical instruments, music acculturation, and the function of music in society. Equivalent to ANTH 400.

**FLK 410. AFRICAN-AMERICAN MUSIC. (3)** A survey of selected musical styles created and developed by African-Americans from the 17th to the 20th century: spirituals, blues, popular music forms (e.g. soul, reggae, rap music). Emphasis will be placed on the historical factors and sociocultural trends that influenced the development of African-American music. Equivalent to ANTH 410. [GEN ED E]

**FLK 411. AMERICAN INDIAN/FIRST NATIONS MUSIC. (3)** *Prerequisite: ANTH 400/FLK 400, ANTH 345/FLK 345, or ANTH 277/FLK 277/MUS 277.* Survey of American Indian/First Nations music. Emphasis will be placed on the study of musical styles and the historical factors and sociocultural contexts that influenced American Indian/First Nations music.

**FLK 434. HISTORIC PRESERVATION. (3)** (See GEOG – Geography and Geology.)

**FLK 445. AMERICAN ARCHITECTURAL HISTORY. (3)** An interdisciplinary survey of American architectural history, including trends and styles, architect designed and manufactured structures and elements, and the social history of American architecture. Equivalent to ART 445.

**FLK 446. RESTORATION OF HISTORIC INTERIORS. (3)** (See FACS - Family and Consumer Sciences.)

**FLK 447. HISTORY OF ARCHITECTURE INTERIORS III. (3)** (See FACS - Family and Consumer Sciences.)

**FLK 462. FOLKLORE AND MEDICINE. (3)** This course examines the role of traditional culture in shaping attitudes and behavior related to sickness, health, and healing. Institutional, alternative, and informal medical settings are discussed. Equivalent to PH 462.

**FLK 464. VERNACULAR ARCHITECTURE. (3)** The forms, functions, and styles of buildings constructed according to custom from local materials to meet individual and cultural preferences.

**FLK 470. MUSEUM PROCEDURES AND PRESERVATION TECHNIQUES. (3)** Essential aspects of museums and of preservation, i.e., collecting, preserving, researching, exhibiting, and interpreting material culture. Equivalent to ANTH 470.

**FLK 477. FOLK ARTS AND TECHNOLOGY. (3)** Folklife research in selected world culture groups, with emphasis on folk crafts, technology, and architecture in the United States prior to their absorption into industrialization. Special reference to northwest European antecedents, sources, and parallels.

**FLK 478. FOLKLORE AND LITERATURE. (3)** Readings in world literature from the Bible to the modern novel and examination of the degree to which oral literature has affected origins and development of written literature.

**FLK 479. DIRECTED INDEPENDENT RESEARCH IN FOLKLORE. (3)** Supervised individual study directed by a member of the Folk Studies faculty (course pass required)

**FLK 480. WOMEN'S FOLKLIFE. (3)** The various images and roles of women in the U.S. and selected world cultures as reflected in folklife materials such as narratives, beliefs, ballads, rhymes, games, customs, and folk arts.

**FLK 489. INTERNSHIP IN FOLK STUDIES. (3)** Practical out-of-classroom experience in a supervised work situation with a cooperating business, industry, social or governmental agency emphasizing application of advanced knowledge and skills in folk studies (course pass required)

## FREN / FRN – FRENCH

DEPARTMENT OF MODERN LANGUAGES (FREN)

DEPARTMENT OF LIBERAL ARTS AND SCIENCES (FRN)

**FREN 100. FRENCH LANGUAGE AND CULTURE ON-SITE. (1-3)** *Prerequisite: Permission of instructor.* An introduction to French and French-speaking culture in conjunction with study abroad for students with little or no previous language study. Does not fulfill the general education foreign language requirement. May be repeated for a total of 3 credits.

**FREN 101 / FRN 101C. ELEMENTARY FRENCH I. (3)** A beginning course designed to teach the four basic skills of understanding, speaking, reading and writing with emphasis on speaking and understanding as well as on cultural aspects of France and other French-speaking nations. (course fee) [GEN ED A-II]

**FREN 102 / FRN 102C. ELEMENTARY FRENCH II. (3)** *Prerequisite: FREN 101.* Continuation of the development of the four basic skills and cultural insights. (course fee) [GEN ED A-II]

**FREN 105. INTRODUCTION TO FRENCH CULTURE. (3)** Survey of contemporary culture of France, with emphasis on values, behavioral characteristics, social and political structures, and achievements of the French-speaking people. Taught in English; only taught abroad.

**FREN 201. INTERMEDIATE FRENCH I. (3)** *Prerequisite: FREN 102.* Expansion of grammatical knowledge and practice in oral and written expression. (course fee) [GEN ED A-II]

**FREN 202. INTERMEDIATE FRENCH II. (3)** *Prerequisite: FREN 201.* Continuation of oral and written practice, vocabulary building and introduction to the reading of literary or cultural texts. (course fee) [GEN ED A-II]

**FREN 210. INTERMEDIATE FRENCH CONVERSATION ABROAD. (1-3)** *Prerequisite: FREN 102 or equivalent.* Course designed to develop the vocabulary and communication skills of a student with one year of college French or equivalent, with emphasis on contact with French native speakers. FREN 210 may not substitute for FREN 201 or 202, but may count as an elective for the major or minor. Taught in French. May be repeated for a total of three credits.

**FREN 211. FRENCH CULTURE ABROAD. (1-3)** *Prerequisite: FREN 102 or equivalent.* Course designed to develop an appreciation for different aspects of France and its people and culture, for a student with one year of college French or equivalent. FREN 211 may not substitute for FREN 201 or 202, but may count as an elective for the major or minor. Taught in French. May be repeated for a total of three credits.

**FREN 306. EXPERIENCING FRENCH ABROAD. (1-6)** *Prerequisites: FREN 202 or equivalent and permission of instructor. Corequisite: Enrollment in supervised language study while abroad.* Supervised language and cultural studies accomplished during a study abroad program. Students who receive transferable credit for language study done during the study abroad program will receive credit only for cultural study. May be repeated once for a maximum of six hours of credit.

**FREN 314. INTRODUCTION TO FRENCH LITERATURE. (3)** *Prerequisite: FREN 202.* This course is intended to develop adequate reading skills to enable the student to succeed in literature courses. Texts from the theatre, poetry, short stories and selections from novels will be read. [GEN ED B-I]

**FREN 320. FRENCH GRAMMAR AND COMPOSITION. (3)** *Prerequisite: FREN 202.* A comprehensive study of French grammar based on classroom explanation and drill and written translation of texts especially prepared to illustrate grammar under discussion. (course fee)

**FREN 321. FRENCH CONVERSATION. (3)** *Prerequisite: FREN 202.* Exercises in pronunciation, comprehension and composition. Thorough review of language usage. Ample opportunity for conversation. Entirely in French. (course fee)

**FREN 322. TRANSLATION. (3)** *Prerequisite: FREN 202.* A concentrated study of the intricacies and processes of translation work (both French to English and English to French) for literary and non-literary materials. (course fee)

**FREN 323. FRENCH CIVILIZATION AND CULTURE. (3)** *Prerequisite: FREN 202.* Readings, discussion, lectures, films, oral and written reports on different aspects of France and its people and culture. (course fee) [GEN ED B-II]

**FREN 325. SURVEY OF FRENCH LITERATURE I. (3)** *Prerequisite: FREN 314 or equivalent.* Reading of French literary texts representing the masterpieces of this important branch of French civilization; lectures on literary history and criticism. The period covered is from 842 AD to the end of the 18th century.

**FREN 326. SURVEY OF FRENCH LITERATURE II. (3)** *Prerequisite: FREN 314 or equivalent. See French 325 for description.* The period covered is the 19th and 20th centuries.

## Course Descriptions

**FREN 328. FRENCH DICTION AND PRONUNCIATION. (3)** *Prerequisite: FREN 202 or equivalent.* Mastery of fluent French diction and pronunciation through intensive practice with sounds, stress, rhythm, linking, phrasing, and intonation. (course fee)

**FREN 331. BUSINESS FRENCH. (3)** *Prerequisite: FREN 202 or equivalent.* Introduction to business communication in the French speaking countries. Linguistic structures and vocabulary, forms of business communication, reading and discussion of business texts, social customs. (course fee)

**FREN 389. INTERNSHIP IN FRENCH. (1-3)** *Prerequisites: One 300-level French course or the equivalent, and permission of instructor.* Supervised work using French in a professional setting. Open only to French majors or minors. May be repeated once for elective credit in the major or minor for a maximum of six hours.

**FREN 420. ADVANCED FRENCH COMPOSITION AND STYLISTICS. (3)** *Prerequisite: FREN 202.* Creative self-expression in written French, refinement of grammatical understanding, introduction to the art of translation and an examination of selected texts to study stylistic devices. (course fee)

**FREN 421. ADVANCED FRENCH CONVERSATION. (3)** *Prerequisite: FREN 202.* Free classroom discussion on assigned topics and reports on newspaper and magazine articles of current interest. Special attention will be paid to idiomatic expressions. (course fee)

**FREN 426. FRENCH LITERATURE OF THE TWENTIETH CENTURY. (3)** *Prerequisite: One 300-level French literature course.* A study of the works of major French writers of the 20th century.

**FREN 427. FRANCOPHONE CULTURE. (3)** *Prerequisite: FREN 323.* Course will cover all francophone countries (including France) and deal with various aspects of their culture: oral literature.

**FREN 445. FRENCH CANADIAN LITERATURE. (3)** *Prerequisites: FREN 314, 321, 325 or 326, or instructor's permission.* A survey of the Québécois novel, theatre and poetry through a selection of 19th and 20th century writers.

**FREN 450. TOPICS IN FRANCOPHONE CINEMA. (3)** *Prerequisites: FREN 320 and 321 or permission of instructor.* Course examines the way Francophone film directors and social scientists look at various aspects of the most recent cinema: narrative structure, recurring patterns, relation of form to content and ideology. Taught in French. May be repeated once for credit.

**FREN 499. ADVANCED STUDIES IN FRENCH. (1-4)** *Prerequisites: Junior or senior standing and permission of instructor.* For guided independent study in culture, language, or literature. May be used with consent of full-time program faculty members for work accomplished during study abroad. Number of credit hours will be determined in consultation with instructor. May be repeated for a maximum of six hours of credit.

**GEOG / GEO- GEOGRAPHY**  
**DEPARTMENT OF GEOGRAPHY AND GEOLOGY (GEOG)**  
**DEPARTMENT OF LIBERAL ARTS AND SCIENCES (GEO)**

### PHYSICAL GEOGRAPHY

**GEOG 100 / GEO 100C. INTRODUCTION TO THE PHYSICAL ENVIRONMENT. (3)** This course introduces the student to the major aspects of the physical environment. [GEN ED D-I]

**GEOG 196. PHYSICAL GEOGRAPHY RECITATION LABORATORY. (1)** *Corequisite: Must be concurrently enrolled in GEOG 100 section designated as a recitation lab course.* The physical geography recitation lab is designed to support and enhance the lecture material through practical exercises and problem solving. Map analysis is stressed, as well as critical thinking related to current issues and events. No category D Lab credit.

**GEOG 121. METEOROLOGY. (3)** An introduction to the elements of the atmosphere, severe storms, atmospheric environmental issues, the interdependence between human life and the atmosphere, and rudimentary forecasting of basic weather systems. A self-paced laboratory is required. (2 hour lecture: (1) lab) (course fee) [GEN ED D-I (DL)]

**GEOG 175. UNIVERSITY EXPERIENCE-GEOGRAPHY. (2)** *Prerequisite: For beginning college freshmen or transfer students with fewer than 24 semester hours of credit.* Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, degree programs, campus resources and personal development. Special attention is given to educational requirements, careers and resources in the geosciences.

**GEOG 204. VOLCANOES AND EARTHQUAKES. (1)** An analysis of the causes and effects of volcanic eruptions and earthquakes. Students who complete GEOG 204 may not enroll in GEOL 204.

**GEOG 205. TORNADOES. (1)** An analysis of the causes and effects of tornadoes.

**GEOG 207. HURRICANES. (1)** An analysis of the causes and effects of hurricanes.

**GEOG 208. FLOODS AND DROUGHTS. (1)** An analysis of the causes and effects of floods and droughts.

**GEOG 209 / GEO 209C. NATURAL DISASTERS. (1)** An analysis of the causes and effects of natural disasters and their human-environment implications.

**GEOG 280. INTRODUCTION TO ENVIRONMENTAL SCIENCE. (3)** An introductory course devoted to the study of environmental issues. A general understanding of application of science to solution of contemporary environmental problems. Equivalent to BIOL 280, CHEM 280, ENV 280, and PH 280. [GEN ED D-I]

**GEOG 310. GLOBAL HYDROLOGY. (3)** *Prerequisite: GEOG 100, or GEOL 102, or GEOL 111.* Emphasis is given to descriptive and quantitative hydrology. The hydrologic cycle, precipitation, evaporation, and transpiration will be covered under descriptive hydrology. Hydrographs, runoff relations, ground water, and storage routing will be covered under quantitative hydrology. Consideration will be given to use and management of water as a resource. Equivalent to GEOL 310.

**GEOG 322. GLOBAL CLIMATE SYSTEMS. (4)** *Prerequisite: GEOG 121.* Analyzes the elements of climate and their world distribution with emphasis on the climatic controls and processes; surveys the influences of climates on environment; introduces climatic classification systems and climatological regions of the world.

**GEOG 328. ELEMENTS OF BIOGEOGRAPHY. (3)** *Prerequisites: GEOG 100, 280, or instructor's permission.* An examination of interrelationships between climatic factors, vegetational biomes, and soil-forming processes, as well as human alteration of the biogeographical environment.

**GEOG 420. GEOMORPHOLOGY. (4)** *Prerequisite: GEOG 100 or GEOL 102 or 111.* The study of the origin, history, and characteristics of landforms produced by fluvial, glacial, wind, and wave erosion and mass-wasting and ground water or by a combination of these, acting upon the major types of earth materials and structures. Laboratory work includes the interpretation of topographic and geologic maps, air photos, and stereopairs. A field trip may be required. Equivalent to GEOL 420.

**GEOG 421. ADVANCED GEOMORPHOLOGY. (3)** *Prerequisite: GEOG 420.* Course emphasis is on landform development under processes associated with running water. Principal topics are climate and geomorphic processes, weathering, the drainage basin as a geomorphic unit, water and sediment in channels, channel form, hillslope characteristics, drainage pattern evolution, channel changes with time, and evolution of hillslopes. A field trip is required.

**GEOG 422. PHYSICAL CLIMATOLOGY. (4)** *Prerequisites: GEOG 424 and MATH 237 and PHYS 265, or permission of instructor.* Addresses the complexity of climatic processes at various spatial and temporal scales. Budgets of energy, water, and momentum, and soil-plant-atmosphere interactions at the earth's surface are explored from both a theoretical and practical point of view.

**GEOG 424. WEATHER ANALYSIS AND FORECASTING. (3)** *Prerequisite: GEOG 121 or permission of instructor.* Analysis of the atmosphere using satellite and radar imagery. Weather forecasting techniques using surface and upper air data are also examined.

**GEOG 426. APPLIED METEOROLOGY/CLIMATOLOGY. (3)** *Prerequisite: GEOG 121 or permission of instructor.* This course offers a practical insight into the influence of meteorology and climatology on everyday life. Environmental problems caused by changes in the atmosphere are also examined.

**GEOG 427. WATER RESOURCES. (3)** *Prerequisite: GEOL/GEOG 310.* Opportunities and constraints of natural hydrologic processes in maintaining or reclaiming environmental quality. Storm water runoff, floods, droughts and water resources planning, development and management.

**GEOG 428. APPLIED GROUNDWATER HYDROLOGY. (4)** *Prerequisites: GEOG/GEOL 310 and GEOL 440.* Groundwater contamination and procedures used in groundwater investigations. Regulations, monitoring wells, groundwater flow, tracer studies, aquifer pumping tests, contaminant plumes, groundwater modeling, remediation and cleanup.

**GEOG 431. DYNAMIC METEOROLOGY I. (3)** *Prerequisites: GEOG 424 and MATH 237 and PHYS 265 or permission of instructor.* Introduction to large-scale dynamics of the Earth's troposphere focusing on fundamental topics, the basic governing equations of motion in the atmosphere, and dry thermodynamics.

**GEOG 432. SYNOPTIC METEOROLOGY. (3)** *Prerequisites: GEOG 424, and MATH 237, and PHYS 265 or permission of instructor.* Addresses the analysis and prediction of large-scale weather systems, such as extra-tropical cyclones, fronts and jet streams through the application of fundamental dynamical concepts of meteorology. (course fee)



**GEOG 433. DYNAMIC METEOROLOGY II . (3)** *Prerequisite: GEOG 431.* Analysis of phenomena related to large scale dynamics of the Earth's troposphere including thermodynamics, elementary applications of the basic equations, and circulation and vorticity.

**GEOG 437. MESOSCALE METEOROLOGY. (3)** *Prerequisites: GEOG 424 and MATH 237, and PHYS 265, or permission of instructor.* Addresses the analysis and prediction of convective and Mesoscale phenomena, such as Mesoscale convective systems, severe thunderstorms, tornadoes and hurricanes. (course fee)

**GEOG 438. PHYSICAL METEOROLOGY. (3)** *Prerequisites: GEOG 424, and MATH 237, and PHYS 265 or permission of instructor.* Addresses the microscopic processes related to cloud formation, radiative transfer, precipitation processes, and dry and moist thermodynamics.

**GEOG 444. ENVIRONMENTAL ETHICS IN GEOGRAPHY. (3)** *Prerequisite: GEOG 280.* Examination of ethical and environmental theory, environmental policy evaluations, philosophy of technology and relevance of environmental ethics in geographic analysis and everyday life.

**GEOG 455. GLOBAL ENVIRONMENTAL CHANGE. (3)** *Prerequisite: GEOG 280 or instructor's permission.* Examines key themes in environmental change at the global scale, environmental policy formation and relevance of environmental change for policy implementation and assessment.

**GEOG 459. PHYSICAL HYDROLOGY. (3)** *Prerequisites: MATH 136 with a grade of C or better, and GEOG 310 or GEOL 420.* A geologically-based and calculus-based introduction to the Earth's hydrologic cycle, using principles of fluid dynamics, that addresses components of atmospheric, surface, and ground waters. Field trips and field-based exercises are required.

**GEOG 461. KARST ENVIRONMENTS. (3)** *Prerequisites: GEOG 310 or 459, GEOG 420, or permission of instructor.* Provides a fundamental understanding of karst, focusing on the processes, landforms, and evolution of karst landscapes over time, with an emphasis on the characterization, distribution, and function of various karst environments. Field trips and field-based exercises are required.

**GEOG 489. ALTERNATIVES IN SUSTAINABILITY. (3)** *Prerequisite: GEOG 280.* This capstone course for the minor in sustainability addresses all aspects of sustainability theory and practice, including problem-solving and decision making techniques and critical analyses of prominent sustainability plans.

#### **HUMAN GEOGRAPHY**

**GEOG 197. HUMAN GEOGRAPHY RECITATION LABORATORY. (1)** The human geography recitation lab is designed to support the lecture material through practical exercises and problem solving. Map analysis is stressed, as well as critical thinking related to current issues and events.

**GEOG 209. NATURAL DISASTERS. (1)** An analysis of the causes and effects of natural disasters and their human-environment implications. Students who complete GEOG 209 may not enroll in GEOL 209.

**GEOG 210. HUMAN ECOLOGY. (3)** A course designed to examine the human elements as a functional variable within an ecosystem through the study of culture groups and their mutual interrelationships with their immediate natural and social environment.

**GEOG 330. INTRODUCTION TO CULTURAL GEOGRAPHY. (3)** *Prerequisite: GEOG 110.* An overview of core concepts in cultural geography based on five major themes: region, mobility, globalization, nature-culture, and cultural landscape. Field trips required.

**GEOG 350. ECONOMIC GEOGRAPHY. (3)** This course examines the functional interrelationships among economic activities and areas in the consumption, production, and exchange of goods and services. [GEN ED C]

**GEOG 378. FOOD, CULTURE, AND ENVIRONMENT. (3)** *Prerequisite: GEOG 110.* Exploration of geographical patterns of agricultural production and cuisine through the intersection of environment, technology, and culture. Field trips required. Students will share the cost of several meals.

**GEOG 380. GLOBAL SUSTAINABILITY. (3)** *Prerequisite: GEOG 210 or GEOG 280.* An introduction to the major themes and scientific principles of sustainability, with an emphasis on developing critical thinking skills.

**GEOG 423. TRANSPORTATION, LOCATION AND GIS. (3)** *Prerequisite: GEOG 317 or permission of instructor.* A critical examination of the problems of interaction, diffusion and information transfer as they appear in a spatial context. Current research and planning needs are analyzed.

**GEOG 425. POLITICAL GEOGRAPHY. (3)** *Prerequisite: Permission of instructor.* A study of the political system as a spatial phenomenon from pre-literate forms and socio-political integration to the nation-state and other modern forms of political unification. Examples from local, metropolitan-regional, national, and international levels.

**GEOG 430. TOPICS IN CULTURAL GEOGRAPHY. (3)** *Prerequisite: GEOG 330.* Examines the concept of culture as it relates to the geographic landscape. Topics include the built environment, symbolic landscapes, representation of place in film, literature, photography, music, subaltern geographies, landscapes, cultures of work and place-situated identity. Course provides an overview of research methods and advanced topics in cultural geography. Field trip and field research is required.

**GEOG 434. HISTORIC PRESERVATION PLANNING: PRINCIPLES AND PRACTICES. (3)** For course description, see City and Regional Planning section.

**GEOG 471. NATURAL RESOURCE MANAGEMENT. (3)** Natural resources of the United States are studied and recommendations for their more efficient utilization are presented. [GEN ED C]

**GEOG 473. INTERACTIONS IN THE CAVE AND KARST ENVIRONMENT. (3)** *Prerequisites: BIOL 120/121 or equivalent.* Discussion of biological diversity, groundwater and humanity's role in utilizing and conserving the unique features of karst areas and use of these areas in teaching. Not applicable to a major or minor in agriculture, biology or geography and geology. Equivalent to AGRI 473.

**GEOG 474. ENVIRONMENTAL PLANNING. (3)** *Prerequisite: Geog 100, 280, or instructor's permission.* An advanced integrative course in environmental science and planning dealing with urban and rural areas. Emphasis on ecological planning strategies for improving climatic conditions, conserving water, and optimizing vegetative and aquatic habitats, while allowing for sustainable economic development at reduced cost.

**GEOG 479. INDUSTRIAL AND COMMERCIAL GEOGRAPHY. (3)** *Prerequisite: GEOG 350 or permission of instructor.* Analysis of industrial and business location with an emphasis on theory and research techniques.

**GEOG 480. URBAN GEOGRAPHY. (3)** Geographic principles related to basic elements of distribution, structure, functional relationships, and regional setting of urban centers are discussed. [GEN ED C]

**GEOG 484. PLANNING: THEORY AND APPLICATION. (3)** *Prerequisite: GEOG 240.* For course description, see City and Regional Planning section.

**GEOG 485. POPULATION AND RESOURCES. (3)** *Prerequisite: Permission of instructor.* The distribution of population and population characteristics are viewed against the background of the resources and cultures of the world.

**GEOG 487. ENVIRONMENTAL LAW. (3)** *Prerequisite: Senior-level standing.* An introduction to major environmental legislation for air, water, toxic, and hazardous pollutants; and related legislative, administrative, and judicial developments.

**GEOG 497. SPATIAL DECISION SUPPORT SYSTEM. (3)** *Prerequisite: GEOG 350.* Theory of locational decision making. Application of locational models in an interactive computer-based environment.

#### **REGIONAL GEOGRAPHY**

**GEOG 110 / GEO 110C. WORLD REGIONAL GEOGRAPHY. (3)** A general survey of the political, social, and ecological systems of the world. The course is concerned with the complexity and diversity of world peoples and cultures. [GEN ED E]

**GEOG 198. WORLD REGIONAL GEOGRAPHY RECITATION LABORATORY. (1)** *Corequisite: Must be concurrently enrolled in GEOG 110 section designated as a recitation course.* The world regional geography recitation lab is designed to support the lecture material through practical exercises and problem solving. Map analysis is stressed, as well as critical thinking related to current issues and events.

**GEOG 200. INTRODUCTION TO LATIN AMERICA. (3)** This course is a broad, interdisciplinary introduction to the study of Latin America, emphasizing regions, peoples, and cultures. [GEN ED E]

**GEOG 360. GEOGRAPHY OF NORTH AMERICA. (3)** Analysis of selected problems related to natural conditions, land use, settlement patterns, and regional structure of the United States and Canada. [GEN ED C]

**GEOG 451. GEOGRAPHY OF KENTUCKY. (3)** A regional study assessing the natural and human resources of Kentucky with special attention to current ecological, social, and economic problems. A field experience is required.

**GEOG 454. GEOGRAPHY OF MIDDLE AMERICA. (3)** *Prerequisite: Permission of instructor.* Analysis of the physical and cultural bases of Mexico, Central America, and the West Indies with emphasis on problems of resource development.

## Course Descriptions

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**GEOG 462. GEOGRAPHY OF SOUTH AMERICA. (3)** *Prerequisite: Permission of instructor.* Analysis of the physical and cultural bases of South America's geographical patterns with an emphasis on problems of urban and regional development.

**GEOG 464. GEOGRAPHY OF EUROPE. (3)** *Prerequisite: Permission of instructor.* A geographic analysis of Europe. Aspects of regional integration, with a focus on the European Community, and problems of economic growth in disadvantaged regions.

**GEOG 465. GEOGRAPHY OF ASIA. (3)** *Prerequisite: Permission of instructor.* A study of regional differences, with particular attention to the distribution and activities of the peoples in relation to the natural and economic setting and to problems of development.

**GEOG 466. GEOGRAPHY OF AFRICA. (3)** *Prerequisite: Permission of instructor.* A geographic survey assessing the relationships of the physical and cultural patterns to actual and potential economic development.

**GEOG 467. GEOGRAPHY OF THE MIDDLE EAST. (3)** *Prerequisite: Permission of instructor.* This course deals with the various aspects of the sequent occupancy of southwestern Asia and surrounding regions. Emphasized are the physical setting, the historic religious geography of the region, and the contemporary scene.

### GEOGRAPHIC TECHNIQUES

**GEOG 203. CARTOGRAPHIC ORIENTEERING. (1)** Use of maps, G.I.S., G.P.S., globes, protractors, rulers, and compasses to perform physical and cultural orienteering with spatially distributed data. Students who complete GEOG 203 may not enroll in GEOL 203.

**GEOG 316. FUNDAMENTALS OF GEOGRAPHIC INFORMATION SYSTEMS. (4)** *Prerequisites: GEOG 100 or GEOL 111, and GEOG 110, or permission of the instructor.* Fundamentals of GIS data management and cartographic design. Topics include data organization, map projections, scale, and accuracy. Hands-on work in geospatial data acquisition, base map development, and map production. (course fee)

**GEOG 317. GEOGRAPHIC INFORMATION SYSTEMS. (4)** *Prerequisites: GEOG 316 with a grade of C or better, or permission of instructor.* Basic concepts of spatial science: introduction to data management, display, and analysis using geographic information systems. (course fee)

**GEOG 318. GEOGRAPHIC INFORMATION SYSTEMS FOR ENGINEERS. (3)** *Prerequisite: MATH 137, CE 160 and CE 161; or permissions of instructor.* Applications of fundamental methods of GIS, with a focus on surveying, water resources, traffic engineering, and construction. This course does not count towards the Certificate in GIS. (course fee)

**GEOG 325. METEOROLOGICAL INSTRUMENTATION AND MEASUREMENT. (3)** *Prerequisite: GEOG 121.* Introduces the purpose, operation, and application of meteorological instrumentation and the treatment of meteorological measurements.

**GEOG 391. DATA ANALYSIS AND INTERPRETATION. (3)** *Prerequisites: GEOG 100 or GEOG 102, GEOG 110, GEOG 316 and general education mathematics requirement or higher; or instructor's permission.* Basic concept of statistical models and use of samples: variation, statistical measures, distribution, tests of significance, analysis of variance and elementary experimental design, regression, correlation, and chi-square as related to interpretation and use of scientific data.

**GEOG 414. REMOTE SENSING FUNDAMENTALS. (4)** *Prerequisite: GEOG 317 or permission of instructor.* Fundamentals of remote sensing theory and application including the electromagnetic spectrum, history of remote sensing, sensing platforms system limitations and applications for vegetation studies, land-use change and environmental management. Course includes a lab component. (course fee)

**GEOG 416. REMOTE SENSING: PRINCIPLES AND APPLICATIONS TO ENVIRONMENT AND PLANNING. (3)** *Prerequisite: GEOG 317 or permission of instructor.* Remote-sensing techniques and their application in the study of the biophysical environment through use of satellite imagery, including visible, infrared and radar data.

**GEOG 417. GIS ANALYSIS AND MODELING. (3)** *Prerequisite: GEOG 317 with a grade of C or better or instructor's permission.* Develops expertise with a broad range of spatial analysis functions applied within a cartographic modeling framework. (course fee)

**GEOG 418. INTERNET GEOGRAPHIC INFORMATION SYSTEMS. (3)** *Prerequisites: CS 146 and GEOG 417; or permission of instructor.* Understanding and utilizing different techniques for creating, analyzing and disseminating GIS data and services via the internet. (course fee)

**GEOG 419. GIS PROGRAMMING. (3)** *Prerequisites: GEOG 317 and CS 170.* Planning and implementing GIS within an organization. Designing and developing GIS applications to support spatial decision making. (course fee)

**GEOG 443. GEOGRAPHIC INFORMATION SYSTEMS DATABASES. (3)** *Prerequisites: CS 146 and GEOG 417 or permission of instructor.* An introduction to the concepts and principles of GIS database planning, design, implementation, and administration. Focuses on state-of-the-art GIS database software and spatial database engine software used in conjunction with relational database management systems. (course fee)

**GEOG 452. FIELD STUDIES IN GEOGRAPHY. (3)** *Prerequisite: Permission of instructor.* Field methods are emphasized in problems, which are assigned. Field work is required.

**GEOG 477. SPECIAL TOPICS IN GEOGRAPHIC INFORMATION SYSTEMS. (3)** *Prerequisites: GEOG 417 and GEOG 419.* Applications of Geographic Information Systems (GIS) technologies in selected fields, including urban & regional planning, environmental modeling, geology, transportation, locational analysis, criminology, public health, and internet GIS. Repeatable once for credit. (course fee)

**GEOG 492. ADVANCED SPATIAL ANALYSIS. (3)** *Prerequisites: GEOG 300, GEOG 391, and GEOG 417.* History and philosophy of spatial analysis. Applications of advanced spatial analytical techniques in an interactive GIS-based environment. Equivalent to GEOL 492.

**GEOG 497. SPATIAL DECISION SUPPORT SYSTEM. (3)** *Prerequisite: GEOG 350.* Theory of locational decision making. Application of locational models in an interactive computer-based environment.

### CITY AND REGIONAL PLANNING

**GEOG 240. INTRODUCTION TO PLANNING. (3)** *Prerequisite: Three hours of social science credit.* An overview of planning theory, practice, and organizations structure. History of planning and planning thought. The comprehensive plan, zoning, and current legislation.

**GEOG 423. TRANSPORT, LOCATION, AND GIS. (3)** *Prerequisite: GEOG 350 or permission of instructor.* A critical examination of the problems of interaction, diffusion, and information transfer as they appear in a spatial context. Current research and planning needs are analyzed.

**GEOG 434. HISTORIC PRESERVATION PLANNING. (3)** An overview of historic preservation methods and practice. The course will include an overview of the historic preservation movement in the United States and an examination of preservation law and methodology. A field project is required.

**GEOG 474. ENVIRONMENTAL PLANNING. (3)** *Prerequisite: GEOG 100, 280, or instructor's permission.* An advanced integrative course in environmental science and planning dealing with urban and rural areas. Emphasis on ecological planning strategies for improving climatic conditions, conserving water, and optimizing vegetative and aquatic habitats, while allowing for sustainable economic development at reduced cost.

**GEOG 481. TOURISM GEOGRAPHY (3)** *Prerequisite: GEOG 110.* Examination of concepts, models, and theories in the geography of tourism. Topics include the evolution of patterns of tourism, economic, environmental, and socio-cultural impacts of tourism, sustainable tourism, environmental tourism, ethical tourism, the politics of tourism, and critical analysis of alternative meanings of tourism sites. Local, national, and international examples in both developed and developing countries are discussed.

**GEOG 484. PLANNING: THEORY AND APPLICATION. (3)** *Prerequisite: GEOG 240 and GEOG 317, or permission of instructor.* An analysis of advanced topics and results of recent research in city and regional planning.

**GEOG 488. RURAL PLANNING. (3)** *Prerequisites: GEOG 240 and GEOG 317; or permission of instructor.* An examination of the principles and practices of rural planning with an emphasis on the relationships between planning and economic, social, and ecologic problems in the rural setting.

**GEOG 495. SUPERVISED PRACTICUM. (1-9)** *Prerequisite: Permission of instructor.* Supervised experience in a cooperating government, community, or private concern. May be repeated for a maximum of 12 credit hours. A maximum of 9 credit hours of practicum can be earned in minor programs.

### OTHER COURSES

**GEOG 275. SUPERVISED INDEPENDENT RESEARCH IN GEOGRAPHY. (3)** *Prerequisites: GEOG 121 or appropriate preparation course, and permission of instructor. Restricted to freshmen, sophomores, and Galtton Academy students.* A study of a selected problem under the supervision of a faculty member.

**GEOG 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** To familiarize Ogden Research Scholars and other research oriented students with the fundamentals of choosing a research topic, performing a bibliographical search on a subject, classification of instruments, data taking, data reduction, professional ethics and other research oriented topics. The common points of research methodology in the different scientific areas will be accentuated. Examples will be drawn from the various disciplines. Use of computers will be emphasized. (Course does not count towards any major or minor.)

**GEOG 300. GEOGRAPHIC RESEARCH AND ANALYSIS. (3)** *Prerequisites: GEOG 100 or GEOL 102 or GEOL 111; GEOG 110; or instructor's permission.* An examination of the field of geography as an academic discipline. The course content will include a review of various philosophies of the field as well as geographic research, analysis, and writing application.

**GEOG 475. SELECTED TOPICS IN GEOGRAPHY. (1-3)** *Prerequisite: Senior standing or permission of instructor.* A study of a selected problem under the supervision of a faculty member.

**GEOG 486. SENIOR ENVIRONMENTAL SEMINAR. (1)** *Prerequisite: Senior standing.* Current environmental issues discussed by invited lecturers, including identification of possible careers in environmental fields.

**GEOG 499. PROFESSIONAL PREPARATION. (1)** *Prerequisite: Senior standing.* Professional career or graduate school preparation, resume writing, college-to-career transition, professional ethics, graduate school application and requirements, written senior assessment and selected seminar topics. Outside speakers from industry and academia will be included. (Grading: Pass/Fail)

#### **GIS AND CARTOGRAPHIC TECHNIQUES**

**GEOG 203. CARTOGRAPHIC ORIENTEERING. (1)** For course description, see Geographic Techniques section.

**GEOG 216. GEOGRAPHIC INFORMATION SCIENCE AND SOCIETY. (3)** Introduces the purpose, operation, and application of the Geographic Information Science technologies in contemporary society. This course cannot be substituted for any other GIS course. (Course fee required.) [GEN ED C]

**GEOG 316. FUNDAMENTALS OF GEOGRAPHIC INFORMATION SYSTEMS. (4)** For course description, see Geographic Techniques section.

**GEOG 317. GEOGRAPHIC INFORMATION SYSTEMS. (3)** For course description, see Geographic Techniques section.

**GEOG 318. GIS FOR ENGINEERS. (3)** For course description, see Geographic Techniques section.

**GEOG 414. REMOTE SENSING FUNDAMENTALS. (4)** For course description, see Geographic Techniques section.

**GEOG 417. GIS ANALYSIS AND MODELING. (3)** For course description, see Geographic Techniques section.

**GEOG 418. INTERNET GIS. (3)** For course description see Geographic Techniques section.

**GEOG 419. GIS PROGRAMMING. (3)** For course description, see Geographic Techniques section.

**GEOG 443. GIS DATABASES. (3)** For course description see Geographic Techniques section.

**GEOG 477. SPECIAL TOPICS IN GEOGRAPHIC INFORMATION SYSTEMS. (3)** For course description, see Geographic Techniques section.

**GEOG 497. SPATIAL DECISION SUPPORT SYSTEM. (3)** For course description, see Geographic Techniques section.

#### **METEOROLOGY AND CLIMATOLOGY**

**GEOG 121. METEOROLOGY. (3)** For course description, see Physical Geography section. [GEN ED D-1(DL)]

**GEOG 122. AVIATION METEOROLOGY. (3)** The emphasis of the course will be on weather elements and their measurements, weather instruments, weather codes needed by aviators, weather effects upon flying, and weather hazards of aviation.

**GEOG 222. OBSERVATIONAL AND ANALYTICAL METEOROLOGY. (3)** *Prerequisite: GEOG 121 or permission of instructor.* An intensive course in weather instrument reading, synoptic weather observations, and analysis of weather maps and charts.

**GEOG 422. PHYSICAL CLIMATOLOGY. (4)** For course description, see Physical Geography section.

**GEOG 424. WEATHER ANALYSIS AND FORECASTING. (3)** For course description, see Physical Geography section.

**GEOG 426. APPLIED METEOROLOGY/CLIMATOLOGY. (3)** For course description, see Physical Geography section.

**GEOG 429. BROADCAST METEOROLOGY. (3)** For course description, see Physical Geography section.

**GEOG 431. DYNAMIC METEOROLOGY. (3)** For course description, see Physical Geography section.

**GEOG 432. SYNOPTIC METEOROLOGY. (3)** For course description, see Physical Geography section.

**GEOG 433. DYNAMIC METEOROLOGY II. (3)** For course description, see Physical Geography section.

**GEOG 437. MESOSCALE METEOROLOGY. (3)** For course description, see Physical Geography section.

**GEOG 438. PHYSICAL METEOROLOGY. (3)** For course description see Physical Geography section.

#### **GEOG / GE- GEOLOGY**

#### **DEPARTMENT OF GEOGRAPHY AND GEOLOGY (GEOG)**

#### **DEPARTMENT OF LIBERAL ARTS AND SCIENCES (GE)**

**GEOG 102 / GE 102C. INTRODUCTION TO GEOLOGY. (3)** A general overview for non-science majors combining the physical and historical aspects of geology. There is no laboratory credit associated with this course. Topics discussed include rocks and minerals, natural resources, landforms and surface processes, oceans, internal Earth processes, plate tectonics, environmental geology, geologic time, and an introduction to earth's history. Students seeking a laboratory experience in geology must enroll in Geology 111 and Geology 113 instead. [GEN ED D-I]

**GEOG 106. GEOLOGY AND CINEMA. (1.5)** Examines how Hollywood depicts geology and geologists in movies. Addresses facts and fallacies in selected movies and in so doing explores basic geological processes and Earth materials. No credit for the Geology major or minor.

**GEOG 107. BACKYARD GEOLOGY. (1.5)** Applies basic geologic principles to local surroundings. Explains how geologic processes create local rock forms and structures. Field trips required. No credit for the Geology major or minor.

**GEOG 111. THE EARTH. (3)** [GEN ED D-I] The study of Earth including rocks, mineral resources, energy, soils, surface geologic processes, earthquakes and Earth's interior, global tectonics, hydrology and environmental geology. Students electing to meet their general education laboratory requirement through GEOL 113 must simultaneously enroll in the GEOL 111 lecture course. Laboratory is required for Geology majors, minors and some prospective science teachers but is optional for most others.

**GEOG 112. EARTH HISTORY. (3)** Geologic study of the Earth's history: major land, sea, and life patterns throughout geologic time. Topics include the development of geology as a science, nature and significance of the fossil record, basic stratigraphic relations, theories concerning the origin of Earth and the solar system, prehistoric life, paleogeography, and global tectonics. Students electing to meet their general education laboratory requirement through GEOL 114 must simultaneously enroll in the GEOL 112 lecture course. The associated laboratory is required for Geology majors, minors and some prospective science teachers, but is optional for most others. [GEN ED D-I]

**GEOG 113. THE EARTH LABORATORY. (1)** *Corequisite: GEOL 111.* Laboratory work designed to accompany GEOL 111. Minerals, rocks, topographic maps, geologic maps, and aerial photographs are studied. This laboratory is required for Geology majors, minors and some prospective science teachers, but is optional for most others. (course fee) [GEN ED D-I(DL)]

**GEOG 114. EARTH HISTORY LAB. (1)** *Prerequisite or Corequisite: GEOL 112.* Laboratory work designed to accompany GEOL 112. Sedimentary rocks, fossil specimens, stratigraphic concepts and geologic maps are studied. This laboratory is required for Geology majors and minors and some prospective science teachers, but is optional for most other students. (course fee) [GEN ED D-I(DL)]

**GEOG 203. CARTOGRAPHIC ORIENTEERING. (1)** Use of maps, G.I.S., G.P.S., globes, protractors, rulers, and compasses to perform physical and cultural orienteering with spatially distributed data. Students who complete GEOG 203 may not enroll in GEOG 203. No credit for the major or minor.

**GEOG 204. VOLCANOES AND EARTHQUAKES. (1)** An analysis of the causes and effects of volcanic eruptions and earthquakes. Students who complete GEOG 204 may not enroll in GEOG 204. No credit for the major or minor.

**GEOG 209. NATURAL DISASTERS. (1)** An analysis of the causes and effects of natural disasters and their human-environment implications. No credit for the major or minor. Students who complete GEOG 209 may not enroll in GEOG 209. No credit for the major or minor.



## Course Descriptions

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**GEOL 270. ANALYTICAL TECHNIQUES IN GEOLOGY. (3)** *Prerequisites: GEOL 111 and 112 or permission of instructor.* Basic analytical techniques used to examine and analyze Earth materials. Topics include precision and accuracy, sample preparation, contamination, calibration techniques, analysis of data sets. (course fee)

**GEOL 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** To familiarize Ogden Research Scholars and other research oriented students with the fundamentals of choosing a research topic, performing a bibliographical search on a subject, classification of instruments, data taking, data reduction, professional ethics and other research oriented topics. The common points of research methodology in the different scientific areas will be accentuated. Examples will be drawn from the various disciplines. Use of computers will be emphasized. (Course does not count towards any major or minor.) Equivalent to BIOL 295, CHEM 295, CS 295, GEOL 295, MATH 295, and PHYS 295.

**GEOL 308. STRUCTURAL GEOLOGY. (4)** *Prerequisites: GEOL 111 and 113, and MATH 116 or higher.* This course introduces the mechanics, characteristics, occurrences, and resultant structures associated with the major processes of deformation of the earth's crust. Major structural regions of North America are discussed. The laboratory emphasizes graphical and mathematical solutions of structural problems. Field trip required.

**GEOL 310. GLOBAL HYDROLOGY. (3)** *Prerequisite: GEOG 100, or GEOL 102, or GEOL 111.* Emphasis is given to descriptive and quantitative hydrology. The hydrologic cycle, precipitation, evaporation, and transpiration will be covered under descriptive hydrology. Hydrographs, runoff relations, ground water, and storage routing will be covered under quantitative hydrology. Consideration is given to use and management of water as a resource. Equivalent to GEOG 310.

**GEOL 311. GENERAL OCEANOGRAPHY. (3)** *Prerequisite: GEOL 102 or 111 or permission of the instructor.* A course in basic fundamentals pertaining to the geological, chemical, physical and biological aspects of the marine environment. Topics for discussion include the topography, structure and history of the ocean basins and their margins, ocean waters and oceanic circulation, tides and waves, marine geochemistry, ocean sediments and sedimentation, near-shore geologic processes and the ocean as a biogeochemical system. The resources of the ocean and the influence of humans are also considered.

**GEOL 325. INTRODUCTION TO MINERALS AND ROCKS. (3)** *Prerequisite: GEOL 102 or GEOL 111.* The sight identification of minerals and rocks is stressed. The description, origin and classification, economic uses, and occurrences of the major mineral and rock groups are discussed. Appropriate rock and minerals specimens are examined in the laboratory.

**GEOL 330. MINERALOGY. (4)** *Prerequisites: GEOL 111 and 113 and one semester of college chemistry or permission of the instructor.* The systematic study of minerals. Includes crystallography, crystal chemistry, mineral stability, the classification of minerals, and the origin, characteristics and occurrences of the major mineral groups. Laboratory work includes crystal symmetry, mineral identification, and an introduction to the optical microscope. A field trip may be required.

**GEOL 350. PETROLOGY. (4)** *Prerequisite: GEOL 330.* The study of the origin, characteristics, occurrence, and classification of igneous and metamorphic rocks, and of the processes that lead to their formation. Their occurrence in relation to plate tectonics is stressed. Laboratory work includes petrographic study of igneous and metamorphic rocks in hand specimen and in thin section. A field trip is required.

**GEOL 370. PRINCIPLES OF STRATIGRAPHY. (4)** *Prerequisites: GEOL 111, 112, 113 and 114.* Description, classification, and correlation of sedimentary rocks. Topics include hand-sample petrography, surface and subsurface analysis techniques, spatial and temporal relations of rock units, biostratigraphy, chronostratigraphy, and cycles and sequences in the stratigraphic record. Associated laboratory work includes field trips.

**GEOL 380. INTRODUCTORY FIELD TECHNIQUES. (3)** *Prerequisites: GEOL 111 and 113; prerequisite or corequisite GEOL 112 and 114.* Techniques of geological field work. Topics include sampling, rock identification and description, field notes and the transition from field to laboratory analysis. Field work is required. (course fee)

**GEOL 399. RESEARCH PROBLEMS IN GEOLOGY. (1-3)** *Prerequisites: GEOL 370 and permission of research project director.* Individual research projects are conducted under faculty supervision. May be repeated with a change of content, but only (3) will be counted toward the major. A written report is required.

**GEOL 405. PALEONTOLOGY. (4)** *Prerequisites: GEOL 112 and 114 and BIOL 120-121 or permission of instructor.* A basic course in paleobiology including the nature of the fossil record, preservation, basic factors and theories relating to the origin and development of living systems and the process of evolution, the species concept, systematics, and paleoecology. Major invertebrate taxa with a significant fossil record are also studied. Laboratory work includes the examination, description, and classification of fossil specimens.

**GEOL 415. ENVIRONMENTAL GEOLOGY. (3)** *Prerequisite: GEOL 111-113 or 102 or GEOG 100 or permission of instructor.* The interrelationships of geologic processes, earth materials, and human activities. Assessment of geologic factors with respect to site selection, energy production, land use, waste disposal, planning, water resources, engineering practices, and the recognition and control of geologic hazards. Class exercises stress the application of geologic knowledge to specific environmental situations.

**GEOL 420. GEOMORPHOLOGY. (4)** *Prerequisite: GEOG 100 or GEOL 111.* The study of the origin, history, and characteristics of landforms produced by fluvial, glacial, wind, and wave erosion and mass-wasting and ground water or by combination of these, acting upon the major types of earth materials and structures. Laboratory work includes the interpretation of topographic and geologic maps, air photos, and stereopairs. A field trip may be required. Equivalent to GEOG 420.

**GEOL 430. OPTICAL MINERALOGY. (3)** *Prerequisite: GEOL 330.* A study of the optical constants and phenomena exhibited by and characteristic of crystalline mineral materials. Topics covered include the behavior of light in crystalline solids, the origin and nature of interference colors, refractive index, birefringence, optical character, and optical identification of minerals. Laboratory work concerns techniques employed with the petrographic microscope and the use of the microscope in mineral identification.

**GEOL 432. CRYSTALLOGRAPHY. (4)** *Prerequisite: GEOL 330 or PHYS 266 or CHEM 222.* An introduction to the theory and experimental practices of modern crystallography. Focuses on the study of symmetry and crystal structures and their physical and chemical properties in environmentally important Earth materials. Laboratory fee required.

**GEOL 440. HYDROGEOLOGY. (3)** *Prerequisite: GEOG 310 or GEOL 310. Prerequisite or corequisite: MATH 136.* Origin, occurrence, and movement of ground water; water wells and aquifer evaluations; exploratory investigations; quality of ground water supplies; legal aspects.

**GEOL 445. AQUEOUS GEOCHEMISTRY. (3)** *Prerequisites: CHEM 120 and 121.* An introduction to geochemical processes of surface and ground water including concentrations of ions and organic compounds, chemical equilibria, and analytical techniques. Carbonate and clay minerals will be studied in detail.

**GEOL 460. SEDIMENTOLOGY AND STRATIGRAPHY. (3)** *Prerequisite: GEOL 380.* Introduces sedimentary processes, including sediment origins, erosion, transportation, deposition and diagenesis. Sedimentation patterns and stratigraphic architecture are studied in the context of depositional and tectonic settings.

**GEOL 465. GEOPHYSICS. (3)** *Prerequisites: GEOL 111 and one year of college physics or permission of instructor.* The fundamentals of general and exploration geophysics. Topics include the origin of the earth and solar system, the earth's interior, geochronology, gravity and isostasy, seismology, the earth's heat, geomagnetism, upper atmosphere, continents and ocean basins, ridges and island arcs, and plate tectonics. The theory and applications of exploration geophysics are also covered, especially gravity, magnetic, and seismic methods.

**GEOL 475. SPECIAL TOPICS IN GEOLOGY. (1-3)** *Prerequisite: Permission of instructor.* A lecture-discussion course in which advanced or special topics in geology are considered in detail.

**GEOL 485. GEOLOGY OF FOSSIL FUELS. (3)** *Prerequisite: GEOL 308 or permission of instructor.* Formation of coal, petroleum and natural gas including depositional setting, source materials and processes of thermal maturation. Stratigraphic and structural relations, modes of occurrence, exploration techniques and resource evaluation are emphasized. Field trip required.

**GEOL 490. PETROLEUM GEOLOGY. (3)** *Prerequisite: GEOL 370 or equivalent.* Concepts of oil formation, source-rock evaluation, thermal maturation, and petroleum migration are reviewed. Emphasis is placed on characterization of petroleum reservoirs and traps and on the techniques employed by geologists in exploration for oil and gas accumulations. Field trip required.

**GEOL 492. ADVANCED SPATIAL ANALYSIS. (3)** *Prerequisites: GEOG 300, GEOG 391, and GEOG 417.* History and philosophy of spatial analysis. Applications of advanced spatial analytical techniques in an interactive GIS-based environment. Equivalent to GEOG 492.

**GEOL 499. PROFESSIONAL PREPARATION IN GEOLOGY. (2)** *Prerequisite: Senior standing.* Professional career preparation in geology including senior assessment, resume writing, college-to-career transition, professional ethics and selected seminar topics. Outside speakers from industry and academics will be included. (Grading: Pass/Fail)

**GERM / GRM- GERMAN**  
**DEPARTMENT OF MODERN LANGUAGES (GERM)**  
**DEPARTMENT OF LIBERAL ARTS AND SCIENCES (GRM)**

**GERM 100. GERMAN LANGUAGE AND CULTURE ON-SITE. (1-3)** *Prerequisite: Permission of instructor.* An introduction to German and German-speaking culture in conjunction with study abroad for students with little or no previous language study. Does not fulfill the general education foreign language requirement. May be repeated for a total of 3 credits.

**GERM 101 / GRM 101C. GERMAN I: FUNDAMENTAL COMMUNICATION. (3)** Introduction to German through exploration of the students' personal world. Students will learn to express preferences, abilities, needs, and obligations; ask for information; describe people, places, and things in their world; and report their typical activities. (course fee) [GEN ED A-II]

**GERM 102 . GERMAN II: SOCIAL COMMUNICATION. (3)** *Prerequisite: GERM 101 or equivalent.* Extension of German I that moves toward increased linguistic and social awareness of German-speaking cultures. Students will use the past tense, demonstrate basic understanding of aspects of the German-speaking world, and be able to give information on course topics. (course fee) [GEN ED A-II]

**GERM 105. INTRODUCTION TO GERMANIC CULTURE. (3)** Survey of the contemporary culture of Austria and Germany, with emphasis on values, behavioral characteristics, social and political structures, and achievements of German-speaking peoples. Taught in English; only taught abroad.

**GERM 201. GERMAN III: CULTURAL COMMUNICATION. (3)** *Prerequisite: GERM 102 or equivalent.* Helps students strengthen basic language skills while continuing to broaden cultural awareness of German-speaking societies. Students produce brief reports related to course topics and express opinions simply. Includes literature, film and fine arts. Taught in German. (course fee) [GEN ED A-II]

**GERM 202. THE GERMAN-SPEAKING LANDS. (3)** *Prerequisite: GERM 201 or equivalent.* Introduction to geography, social structures, and recent history. Material drawn from literature, popular culture, and the Internet. Students learn to read short texts and express opinions about them. Taught in German. (course fee) [GEN ED A-II]

**GERM 210. INTERMEDIATE GERMAN CONVERSATION ABROAD. (1-3)** *Prerequisite: GERM 102 or equivalent.* Course designed to develop the vocabulary and communication skills of a student with one year of college German or equivalent, with emphasis on contact with German native speakers. GERM 210 may not substitute for GERM 201 or 202, but may count as an elective for the major or minor. Taught in German. May be repeated for a total of three credits.

**GERM 211. INTERMEDIATE GERMAN CULTURE ABROAD. (1-3)** *Prerequisite: GERM 102 or equivalent.* Course designed to develop an appreciation for different aspects of German-speaking countries and their people and cultures, for a student with one year of college German or equivalent. GERM 211 may not substitute for GERM 201 or 202, but may count as an elective for the major or minor. Taught in German. May be repeated for a total of three credits.

**GERM 306. EXPERIENCING GERMAN ABROAD. (1-6)** *Prerequisites: GERM 202 or equivalent and permission of instructor. Corequisite: Enrollment in supervised language study while abroad.* Supervised language and cultural studies accomplished during a study abroad program. Students who receive transferable credit for language study done during the study abroad program will receive credit only for cultural study. May be repeated once for a maximum of six hours of credit.

**GERM 314. INTRODUCTION TO GERMAN LITERATURE. (3)** *Prerequisite: GERM 202.* Emphasis on major periods, literary types and critical approaches through the study of selected representative works and authors. [GEN ED B-I]

**GERM 330. GERMAN COMPOSITION AND CONVERSATION. (3)** *Prerequisite: GERM 202.* Develops skill in writing and speaking standard German. Stress is on vocabulary building, use of dictionary and control of sentence structures. Skill in spoken German is aimed at enabling the students to find their way around the environment and to function in a social situation. (course fee)

**GERM 331. BUSINESS GERMAN. (3)** *Prerequisite: GERM 202 or equivalent.* Introduction to business communication in German-speaking countries: linguistic structures and vocabulary, forms of business communication, reading and discussion of business texts, social customs. (course fee)

**GERM 332. ADVANCED GERMAN TRANSLATION. (3)** *Prerequisite: GERM 202 or permission of instructor.* Translation English to German and German to English of texts selected from various sources both literary and non-literary. Texts are selected for general interest and challenge to the translator.

**GERM 333. GERMANIC CIVILIZATION AND CULTURE. (3)** *Prerequisite: GERM 202.* Survey of the historical background and cultural development of the German-speaking countries of Europe: The Federal Republic of Germany, Austria and Switzerland. Conducted in German. (course fee) [GEN ED B-II]

**GERM 335. CONTEMPORARY CULTURE AND CIVILIZATION. (3)** *Prerequisites: GERM 202 or equivalent.* Study of Geography, politics, social customs, culture and contemporary issues of the German-speaking countries. Especially useful for students who plan to study or work abroad. Taught in German. (course fee) [GEN ED B-II]

**GERM 389. INTERNSHIP IN GERMAN. (1-3)** *Prerequisites: One 300-level German course or the equivalent, and permission of the instructor.* Supervised work using German in a professional setting. Open only to German majors or minors. May be repeated once for elective credit in the major or minor for a maximum of six hours.

**GERM 430. ADVANCED GERMAN STYLISTICS. (3)** *Prerequisite: GERM 330 or permission of instructor.* Provides intensive practice in written and spoken German, enabling the student to write letters, reports, essays, descriptions, and to discuss literary, cultural, and political topics. (course fee)

**GERM 435. GERMAN LITERATURE OF THE 19TH AND 20TH CENTURIES. (3)** *Prerequisite: GERM 314 or permission of instructor.* A study of major German, Austrian, and Swiss writers of the 19th and 20th centuries with emphasis on prose and drama.

**GERM 436. GERMAN LITERATURE OF THE CLASSICAL PERIOD. (3)** *Prerequisite: GERM 314 or permission of instructor.* A study of the outstanding works of Goethe, Schiller and other authors of the late 18th and early 19th centuries.

**GERM 437. GERMAN LITERATURE AND FILM. (3)** *Prerequisite: GERM 314 or equivalent.* A study of German film and film adaptations of German literature. Emphasis on textual analysis, special film terminology, theoretical approaches to film, writing about film.

**GERM 455. TOPICS IN GERMANIC LITERARY AND CULTURAL STUDIES. (3)** *Prerequisite: GERM 314 or permission of instructor.* Examines different topics of interest in German literary and cultural studies. May be repeated once for credit.

**GERM 499. ADVANCED STUDIES IN GERMAN. (1-4)** *Prerequisites: Junior or senior standing and permission of instructor.* For guided independent study in culture, language, or literature. May be used with consent of full-time program faculty members for work accomplished during study abroad. Number of credit hours will be determined in consultation with instructor. May be repeated for a maximum of six hours of credit.

**GERO - GERONTOLOGY**  
**CENTER FOR GERONTOLOGY**

**GERO 100. INTRODUCTION TO THE AGING EXPERIENCE. (3)** An introduction to a variety of topics involved in the study of aging. Considers such issues as worldwide changing demographics, increased diversity among the aged, intergenerational relationships, and biopsychosocial concerns of aging. [GEN ED C]

**GERO 485. SEMINAR IN GERONTOLOGY. (1)** *Prerequisites: GERO 100, primary GERO electives, and consent of Gerontology coordinator.* Students integrate what they have learned in gerontology with a focus on how those concepts, ideas, theories and practical experiences relate to their career or higher education goals. Students create a portfolio and resume that reflect their experiences.

**GERO 490. INDEPENDENT STUDY IN GERONTOLOGY. (1-6)** *Prerequisites: Permission of the instructor and the gerontology coordinator.* Supervised individual study and/or field-based experience in a topic or area of gerontology of particular interest to the student. May be repeated for credit but only a total of 3 credits can be counted toward gerontology minor.

**GERO 495. TOPICS IN GERONTOLOGY. (1-3)** Investigation of specific issues in gerontology, either from the perspective of a single discipline or from a multidisciplinary perspective. Students are responsible for arranging transportation to assigned sites.

## Course Descriptions

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### GWS – GENDER & WOMEN STUDIES GENDER AND WOMEN'S STUDIES PROGRAM

#### GWS 200. INTRODUCTION TO GENDER AND WOMEN'S STUDIES. (3)

Drawing on historical perspectives and cultural analysis, this course examines such topics as women and work, violence against women, family, and the social construction of gender, sexuality, race, and class. [GEN ED C]

#### GWS 321. WOMEN AND JOURNALISM. (3) *Prerequisite: Sophomore standing.*

Survey of women's contributions to journalism, including historical and contemporary challenges women face in the profession, mainstream news media coverage of women's issues, examples of women's work in various news genres, global feminist news coverage, and the depiction of women journalists in film and literature.

#### GWS 375. AMERICAN MASCULINITIES. (3) *Prerequisite: Sophomore standing.*

Survey of the meanings of manhood in the United States, including historical, social, economic, cultural, and political influences on the development of masculine identity.

**GWS 400. WESTERN FEMINIST THOUGHT. (3) *Prerequisite: WOMN 200 and junior standing.*** This course presents the fundamental concepts embodied in Western feminist thought as it has developed from the eighteenth century to the present. It emphasizes a close analysis of individual works and critical evaluations of the assumptions and central concepts that inform the works under consideration.

#### GWS 421. GENDER, WOMEN AND SCIENCE. (3) *Pre-requisites: 6 hours of science from General Education Category D1 or permission of instructor and junior standing.*

Study of women's participation in the natural and physical sciences, the scientific education of women, contemporary science workplaces, and feminist critiques of science.

#### GWS 470. SPECIAL TOPICS IN GENDER AND WOMEN'S STUDIES. (3)

*Prerequisites: Junior standing and permission of instructor.* A detailed study of a specialized topic in Women's Studies.

#### GWS 491. PRACTICUM IN GENDER AND WOMEN'S STUDIES. (3)

*Prerequisite: Junior standing, WOMN 200, and instructor permission.* Practical experience volunteering with cooperating community organizations that address the needs of women or deal in some compelling way with gender issues.

**GWS 499. DIRECTED STUDY. (1-3)** This course is available to students who wish to conduct individual, intensive reading and research in a specific area of women's studies under the direction of supervising faculty. Approval required prior to enrollment.

### HCA – HEALTH CARE ADMINISTRATION DEPARTMENT OF PUBLIC HEALTH

**HCA 120. HEALTH LITERACY FOR CONSUMERS. (3)** Provides an introduction to health literacy from a consumer's perspective. Students will examine the current state of affairs in healthcare, identify medical challenges, and learn how consumers can heighten awareness and better prepare to be their own best advocate.

**HCA 340. HEALTH CARE ORGANIZATION AND MANAGEMENT. (3)** Examines the historic, social, political, and economic factors that shape the U.S. health care delivery system. Topics include the components of the healthcare delivery system such as medical office practices, hospitals, and long-term healthcare systems. Included are financial and non-financial resources found in the U.S., concepts of public health, quality of care and outcomes measurement, and strategies for improving access to care. The role of health care administration as critical to the system will be stressed.

**HCA 342. HUMAN RESOURCES MANAGEMENT FOR HEALTHCARE MANAGERS. (3) *Prerequisites: HCA 340 or permission of instructor.*** This course explores human resource management issues experienced by supervisors within healthcare organizations. Course topics include core human resources management functions and skills (job analysis, recruitment, retention, selection, placement, training/education, performance evaluation, and compensation) related to clinical, administrative and paraprofessional employees within the healthcare setting.

**HCA 343. QUALITY MANAGEMENT FOR HEALTHCARE. (3) *Prerequisite: HCA 340 or permission of instructor.*** Examines the history, philosophies, methods, and techniques used in continuous quality improvement, specifically for healthcare delivery systems. Topics include problem identification, data collection and analysis, implementation, and evaluation of system changes. Customer service approach to health care, accreditation, credentialing, and current issues in quality improvement (performance improvement models and patient safety improvement), utilization management and risk management will be included in the discussion.

**HCA 344. HEALTH SYSTEMS MANAGEMENT. (3) *Prerequisite: HCA 340 or permission of instructor.*** This course provides information and applications of general systems theory relative to organizations, operations, and decision analysis in healthcare delivery system components. The course will also explore the responsibilities, relationships, and trends of various departments in health facilities.

**HCA 345. LONG-TERM CARE ADMINISTRATION. (3) *Prerequisite: HCA 340 or permission of instructor.*** Introduce the special topics and operating environment facing long-term care managers today. Emphasis is on regulations, reimbursement, care delivery, and alternative delivery systems that deal with the elderly. Includes field trips.

**HCA 346. AMBULATORY CARE ADMINISTRATION. (3) *Prerequisite: HCA 340.*** Access, content, and expected outcomes of health care delivery settings outside traditional inpatient facilities.

**HCA 347. INTERNATIONAL COMPARISONS OF HEALTH CARE SYSTEMS. (3) *Prerequisite: ENG 100.*** Cross country comparisons, including concepts of illness and healing within different cultural contexts; differing approaches to critical issues including access, quality of care, and cost containment; and methods of organization, financing and structuring of providers in various countries. [GEN ED E]

#### HCA 353. QUALITY AND PATIENT SAFETY IN LONG-TERM CARE. (3)

Application of quality management techniques with special emphasis on the types of populations, facilities, and expectations involved in long-term care service delivery programs.

**HCA 355. NURSING FACILITY ADMINISTRATION. (3) *Prerequisite: HCA 345 or permission of instructor.*** Cover the domains of knowledge associated with the national licensure examination for nursing home administrators along with other necessary knowledge for the administration of a long-term care facility.

**HCA 383. STATISTICAL APPLICATIONS IN HEALTHCARE. (1) *Prerequisite: Permission of instructor.*** This course covers statistical applications in both MS Excel and SPSS. Basic familiarity with personal computers is assumed.

#### HCA 401. FUNDAMENTALS OF HEALTH CARE FINANCIAL MANAGEMENT. (3)

*Prerequisite: HCA 340 or permission of instructor.* Principles of financial management for health care organizations. Financial ratios applicable to health providers and insurance companies; issues in the healthcare revenue cycle and value chain; recognizing sources of risk in reimbursement and addressing risk in financial plans.

**HCA 440. HEALTH ECONOMICS. (3) *Prerequisites: HCA 340, 344, 345 or 346, and ECON 202.*** Examines the characteristics of the markets for medical services with emphasis on medical costs, competition, health cost inflation, health insurance, medical service markets, regulation, and economic strategies for health care managers. This course includes financing and cost-control in foreign health systems.

**HCA 441. LEGAL ASPECTS/ HEALTH CARE. (3) *Prerequisite: HCA 340, or permission of instructor.*** This course will examine the relationship between the health care system in the United States and the legal system. The component parts of the legal system, including the legislative, administrative and judicial functions will be reviewed. Current trends in the area of health care law will be studied.

#### HCA 442. PRINCIPLES AND METHODS OF HEALTH PLANNING. (3)

*Prerequisites: HCA 340 and HCA 344.* This course will provide theoretical foundations and methodology used in health planning. It will include the roles of government, health professions and consumers in the process of planning for health services, facilities and manpower.

**HCA 445. HEALTH CARE FINANCE. (3) *Prerequisites: HCA 340, 344, 345 or 346, 440, ACCT 200, 201 and FIN 330.*** Methods of financing health care will include a review of health care specific financial statements, and quantitative methods. Students are expected to develop an understanding of the financial basis of cost accounting and managerial decision-making. The course covers the importance of managed care and an overview of managed care contracting.

#### HCA 446. HEALTH CARE INFORMATICS. (3) *Prerequisite: HCA 340.*

Consideration of the vital role played by the exchange of organizational information in support of clinical care and management decision making in today's health care environment.

#### HCA 447. INFORMATION SYSTEMS LABORATORY. (1) *Prerequisite:*

*Permission of instructor.* This course includes hands-on instruction in computer hardware, operating systems, and database architecture. Basic familiarity with personal computers is assumed.



**HCA 448. HEALTH CARE ANALYSIS AND EVALUATION. (3)** *Prerequisites: HCA 344 and senior standing.* Unifies the knowledge gained in the required course work for health care administration majors and prepares them for the internship experience. Individual primary projects are required.

**HCA 449. INTERNSHIP IN HEALTH CARE ADMINISTRATION. (6)** *Prerequisites: Completion of all program course requirements, general education and electives, minimum overall GPA of 2.5, and permission of the internship supervisor.* The internship provides the student administrative experience with a health care provider or health related organization. Students are expected to secure the internship site during the last academic semester and are responsible for all university and facility requirements during the internship. Participating agencies will have a qualified administrator to serve as preceptor. Off-campus travel required. Interns are not permitted to take other courses during internship. (Grading: Pass/Fail)

**HCA 471. MANAGED CARE. (3)** *Prerequisites: HCA 340, 344, 440, 441.* This elective course provides an overview of managed care, includes history, government policy, organizational structures, cost control strategies and management issues.

**HED- HEALTH EDUCATION  
DEPARTMENT OF LIBERAL ARTS AND SCIENCES**

**HED 100C. PERSONAL HEALTH. (3)** Examines behaviors and environmental conditions that enhance or hinder an individual's health status. In addition to exploring social and environmental factors, students are encouraged to think critically about behavioral choices that impact one's health. Students assess their individual behavior in the light of current scientific knowledge concerning mental health; drugs, alcohol and tobacco; health care; selection of health products; prevention of disease; nutrition; exercise, and stress management. Equivalent to PH 100. [GEN ED F]

**HED 165C. DRUG ABUSE. (3)** This course offers an opportunity for the student to explore the drug culture, and both healthful and harmful use of drugs. The scope will include marijuana, hallucinogens, narcotics, stimulants, depressants and volatile chemicals. Pharmacological, psychological and sociological aspects of drug abuse will be studied through individual research, group discussion, lectures and field trips when practical. Equivalent to PH 165. [GEN ED F]

**HED 247C. CONTEMPORARY HEALTHCARE ISSUES. (3)** *Prerequisites: ENGL 100C, sophomore standing.* An introductory course addressing contemporary issues confronting the healthcare delivery system, patients, and medical professionals in American society.

**HIM- HEALTH INFORMATION MANAGEMENT  
DEPARTMENT OF ALLIED HEALTH**

**HIM 100. HEALTH DATA CONTENT AND STRUCTURE \*\* (4)** Emphasis on the health information profession, interdisciplinary relationships, health care data management, documentation standards, and methods of access and retention of image-based information and maintenance of health information in acute and non-acute care facilities. Procedures for maintaining vital statistics and specialized registries will be included.

**HIM 220. STATISTICAL APPLICATIONS IN HEALTH INFORMATION MANAGEMENT. (2)** *Prerequisites: HIM 100 and MA 109C/ 116C.* Emphasis on acquiring knowledge and skills in data collection methods, health statistics terminology, and computation and presentation of reported health statistics.

**HIM 221. HEALTH INFORMATION AND QUALITY MANAGEMENT\*\*. (4)** *Prerequisites: HIM 100.* Exploration of principles of management, human relations, human resources, total quality management, utilization and risk management and credentialing in the HIM department and healthcare setting.

**HIM 225. LEGAL ISSUES IN HEALTH INFORMATION MANAGEMENT. (2)** Advanced course relating concepts and principles of law, the health record as a legal document, confidential communication, consents and authorization, release of information and current trends in health legislation.

**HIM 230. COMPUTER SYSTEMS AND APPLICATIONS IN HEALTH INFORMATION MANAGEMENT. (3)** *Prerequisites: HIM 100 and CSCI 145C.* Exploration of computer systems for health information management, with emphasis on the electronic health record. Various HIM software applications will be utilized.

**HIM 250. INTERNATIONAL CLASSIFICATION OF DISEASES (ICD) CODING. \*\*. (4)** *Prerequisites: HIM 100, HIM 290, BIO 131C, or consent of the instructor.* Discussion of various nomenclature and classification systems. Guidelines used to assign codes to diseases and operations in the current ICD classification system.

**HIM 251. HEALTHCARE COMMON PROCEDURE CODING SYSTEM/ CURRENT PROCEDURAL TERMINOLOGY (HCPCS/CPT) CODING. \*\* (4)** *Prerequisite: HIM 100 or consent of instructor.* Application of HCPCS/ CPT coding principles to outpatient reimbursement systems.

**HIM 252. HEALTHCARE PAYMENT SYSTEMS. (3)** Overview of management of health care payment systems including insurances, billing and collection processes, case mix analysis, corporate compliance, HIPAA, and other current reimbursement issues.

**HIM 290. MEDICAL TERMINOLOGY. (2)** A course designed to acquaint the student with the specialized language of medicine and to develop communication skills in areas where use of medical terms is necessary and appropriate. Equivalent to AH 290.

**HIM 291. ADVANCED MEDICAL TERMINOLOGY. (2)** *Prerequisite: HIM 290 or consent of instructor.* Terminology of diseases, operations and treatment modalities.

**HIM 292. PHARMACOLOGY AND LABORATORY DIAGNOSTICS. (2)** Study of pharmacology, laboratory tests and diagnostics as they relate to the management of health information.

**HIM 295. SEMINAR AND PROFESSIONAL PRACTICE EXPERIENCE. (5)** *Prerequisites: Completion of all HIM required courses.* Final project-based field experience. Two weeks preparatory classroom work; two weeks focused field experience; on-campus post-seminar and project presentation. Student responsible for own expenses.

\*\*\*Lab component required

**HIST / HIS - HISTORY  
DEPARTMENT OF HISTORY (HIST)  
DEPARTMENT OF LIBERAL ARTS AND SCIENCES (HIS)**

**GENERAL HISTORY**

**HIST 101. WORLD CIVILIZATION I. (3)** A comparative historical survey of the major political, religious, and cultural developments in Asia, Africa, and the Mediterranean basin, Europe, and the Americas from ca. 3000 BCE to 1500 CE.

**HIST 102. WORLD CIVILIZATION II. (3)** A comparative historical survey of the major political, religious, and cultural developments in Asia, Africa, Europe, and the Americas from 1500 to present.

**HIST 119 / HIS 119C. WESTERN CIVILIZATION TO 1648. (3)** A survey of the political, social, cultural, and economic phases of western civilization to 1648. [GEN ED C]

**HIST 120 / HIS 120C. WESTERN CIVILIZATION SINCE 1648. (3)** A survey of the political, social, cultural, and economic phases of western civilization since 1648. [GEN ED C]

**HIST 175. UNIVERSITY EXPERIENCE- HISTORY/ SOCIAL SCIENCES. (3)** *Prerequisite: For beginning college freshmen or transfer students with fewer than 24 semester hours of credit.* Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, iCAP reports, campus resources and personal development. Special attention is given to educational requirements, careers and resources in history and social studies.

**HIST 240 / HIS 240C. THE UNITED STATES TO 1865. (3)** A survey of the political, social, cultural, and economic phases of American life to the Civil War.

**HIST 241 / HIS 241C. THE UNITED STATES SINCE 1865. (3)** A survey of the political, social, cultural, and economic phases of American life since the Civil War.

**HIST 498. SENIOR SEMINAR. (3)** A capstone course designed for senior history and social studies majors. This seminar will deal with themes that challenge the student to develop an overview of history.

**UPPER-DIVISION COURSES MEETING AREA REQUIREMENTS: UNITED STATES HISTORY**

**HIST 320. AMERICAN STUDIES I. (3)** *Prerequisite: Junior standing or permission of instructor.* An interdisciplinary course designed to examine the diverse origins and the decisive elements in the development of American culture. It seeks to provide a wide cultural appreciation and a greater understanding of the mainstream of American thought through the coordinated application of numerous viewpoints drawn from the contributing disciplines of English, Political Science, and History.

## Course Descriptions

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**HIST 321. AMERICAN STUDIES II. (3)** *Prerequisite: Junior standing or permission of instructor.* An interdisciplinary course designed to examine the diverse origins and the decisive elements in the development of American culture. It seeks to provide a wide cultural appreciation and a greater understanding of the mainstream of American thought through the coordinated application of numerous viewpoints drawn from the contributing disciplines of English, Political Science, and History.

**HIST 347. SOCIAL HISTORY OF THE UNITED STATES SINCE 1800. (3)** A topical study of the institutions and influences that have shaped American society in the nineteenth and twentieth centuries.

**HIST 348. UNITED STATES, 1900-1945. (3)** A study of the period 1900-1945, with special emphasis on the Progressive Movement, the Republican era, and the New Deal. Foreign affairs are related to domestic events and policy.

**HIST 349. THE UNITED STATES SINCE 1945. (3)** A study of all phases of United States history since 1945.

**HIST 352. AMERICAN BORDERLANDS AND THE WEST. (3)** An exploration of borderlands/frontiers in American history with a particular focus on the trans-Mississippi West in the nineteenth century.

**HIST 353. INDIAN PEOPLES OF NORTH AMERICA. (3)** *Prerequisite: HIST 240 or 241 recommended, but not required.* A study of the indigenous people of North America from precontact to the present, with an emphasis on Indian peoples in the United States. [GEN ED E]

**HIST 358. BLACKS IN AMERICAN HISTORY TO 1877. (3)** A chronological study of African American history and culture from 1619 to 1877 with an emphasis on black contributions to American life and thought. [GEN ED E]

**HIST 359. BLACKS IN AMERICAN HISTORY SINCE 1877. (3)** A chronological study of African American history and culture since 1877 with an emphasis on black contributions to American life and thought. [GEN ED E]

**HIST 430. THE CIVIL RIGHTS MOVEMENT IN AMERICA. (3)** *Prerequisite: HIST 119 or 120 or permission of the instructor.* Survey of the struggle for civil rights and social justice in 20<sup>th</sup> century America.

**HIST 440. COLONIAL NORTH AMERICA TO 1763. (3)** *Prerequisite: HIST 119 or 120, or permission of instructor.* The background, founding and development of the North American colonies, emphasizing political, social, cultural, and economic institutions.

**HIST 441. THE AMERICAN REVOLUTION AND EARLY REPUBLIC, 1776-1815. (3)** A study of the Confederation, the American Revolution, the making of the Constitution, and the development of the nation through the War of 1812.

**HIST 442. THE AGE OF JACKSON, 1815-1850. (3)** A detailed study of social, political, and economic events from the War of 1812 through the War with Mexico.

**HIST 443. CIVIL WAR AND RECONSTRUCTION, 1850-1877. (3)** A study of the origins and course of the war, including an analysis of military, social, cultural, and diplomatic events, as well as significant developments during the era of Reconstruction. Occasional field trips to Civil War sites.

**HIST 444. GILDED AGE AMERICA. (3)** A study of American history and culture from the end of Reconstruction to the early twentieth century, emphasizing social, political, cultural, and regional development.

**HIST 445. AMERICAN LEGAL HISTORY TO 1865. (3)** A survey of the development of American law and its relationship to political, economic, and social trends in antebellum American society.

**HIST 446. AMERICAN LEGAL HISTORY SINCE 1865. (3)** A survey of the development of American law and its relationship to political, economic, and social trends in modern American society.

**HIST 447. HISTORY OF AMERICAN POPULAR CULTURE. (3)** *Prerequisite: HIST 119 or 120 or permission of instructor.* Introduction to the central role popular culture has played in United States history and consciousness from the nineteenth century to the present.

**HIST 448. AMERICAN BIOGRAPHIES. (3)** *Prerequisite: Junior standing.* The lives of famous Americans, the times in which they lived, and the skills of their biographers.

**HIST 449. KOREA AND VIETNAM. (3)** A detailed study of both the Korean and Vietnam conflicts and how they related to the overall foreign policy of the U.S.

**HIST 450. DIPLOMATIC HISTORY OF THE UNITED STATES TO 1898. (3)** An analysis of American diplomacy from the colonial period through the Spanish-American War.

**HIST 451. DIPLOMATIC HISTORY OF THE UNITED STATES SINCE 1898. (3)** An analysis of American diplomacy from the Spanish-American War to the present.

**HIST 453. AMERICAN WOMEN'S HISTORY. (3)** Social, cultural, and political history of American women from pre-colonial times to the present.

**HIST 454. HISTORY OF RELIGION IN AMERICA. (3)** A survey of the development of religion in America. Among the subjects covered will be the separation of church and state and American civil religion.

**HIST 456. KENTUCKY HISTORY. (3)** A study of the political, economic, social, and cultural development of the state from pioneer days. Local development is also stressed.

**HIST 457. OLD SOUTH. (3)** Intellectual, cultural, political, economic, and racial ideologies of the American South, focusing on the period between 1800 and 1860.

**HIST 458. NEW SOUTH. (3)** Intellectual, cultural, political, economic, and racial ideologies of the American South from the Civil War until the end of the twentieth century.

**HIST 463. THE ATLANTIC WORLD. (3)** *Prerequisite: HIST 119 or 120 or permission of instructor.* A study of the areas touched by the Atlantic Ocean in the period from the 1300s through the early 1800s, focusing on the intersections of African, Native American, and European cultures. [GEN ED E]

**HIST 481. THE RISE AND FALL OF THE CONFEDERACY. (3)** *Prerequisites: HIST 119 or 120 and HIST 240, or permission of instructor.* An overview of the Confederate States of America. Topics covered will include nationalism, race, politics, religion and leadership.

### EUROPEAN HISTORY TO 1648

**HIST 305. ANCIENT GREECE. (3)** A survey emphasizing the political, cultural, social, and economic aspects of Greek civilization. [GEN ED B-II]

**HIST 306. ANCIENT ROME. (3)** A survey emphasizing the political, cultural, social, and economic aspects of Roman civilization. [GEN ED B-II]

**HIST 307. THE MIDDLE AGES. (3)** A study of political, cultural, social, and economic institutions from the fifth century to the fourteenth century. [GEN ED B-II]

**HIST 317. RENAISSANCE EUROPE. (3)** *Prerequisites: HIST 119 or 120, and sophomore standing; or permission of the instructor.* A study of the impact of Renaissance culture and thought among various social, intellectual, and political groups in Italian cities and princely courts, and the diffusion of the movement in Western Europe from the thirteenth to sixteenth centuries. [GEN ED B-II]

**HIST 318. AGE OF THE REFORMATION. (3)** *Prerequisites: HIST 119 or 120, and sophomore standing; or permission of the instructor.* A study of the religious reform movements in Europe from the late Middle Ages to the end of the religious wars in 1648, with particular attention paid to the cultural, intellectual, political, and social responses to Reformation ideas. [GEN ED B-II]

**HIST 323. THE BRITISH ISLES TO 1688. (3)** A study of the British Isles from earliest times through the Medieval and Early Modern periods. Examining the participation both of elites and of ordinary men and women, this course explores the social, cultural, political and economic development of England, Wales, Scotland, and Ireland. Major themes include the early Celts, Roman conquest, religious changes, the establishment of regional kingdoms, the expansion of England, the origins of English constitutional law and Parliament, and the changing relationship with continental Europe.

**HIST 407. THE CRUSADES: WEST MEETS EAST. (3)** A study of the idea of holy war and political, social, and cultural interaction in the Mediterranean World from 1000 to 1300.

**HIST 419. TUDOR-STUART ENGLAND. (3)** A study of the principal political, economic, social, religious, and cultural developments in British history from the beginning of the Tudor dynasty in 1485 to the end of the Stuart dynasty in 1714.

### EUROPEAN HISTORY SINCE 1648

**HIST 322. AGE OF ENLIGHTENMENT. (3)** A detailed study of social, political, cultural, intellectual, and economic events from 1648 to 1789 with primary emphasis upon the development of Absolutism during the Old Regime.

**HIST 324. MODERN BRITAIN SINCE 1688. (3)** A study of the British Isles from the end of the seventeenth century to the present. Examining the participation both of elites and of ordinary men and women, this course explores the social, cultural, political and economic developments of the United Kingdom in modern times. Major themes include nationhood and empire, industrialization and class formation, gender relations, the expansion of suffrage and the rise of mass politics, the impact of the World Wars and the Great Depression, the development of the welfare state, Britain's shifting relationship with Europe, and the politics of ethnicity and race in post-colonial Britain.

**HIST 334. NINETEENTH CENTURY EUROPE. (3)** A study of political, intellectual, and socioeconomic developments with special emphasis on nationalism, the rise of socialism, and the causes of World War I.

**HIST 335. TWENTIETH CENTURY EUROPE. (3)** *Prerequisite: HIST 119 or 120 or permission of instructor.* A survey of Europe during the twentieth century that covers developments in social, cultural, political, intellectual and gender history.

**HIST 338. RUSSIA TO 1900. (3)** A study of the development of Russia from its beginnings to the pre-Soviet era with special emphasis on the centuries of isolation which separated Russia from the mainstream of European development.

**HIST 340. HISTORY OF WESTERN POPULAR CULTURE SINCE 1450. (3)** *Prerequisite: HIST 119 or 120 or permission of instructor.* Examines popular culture in the Western World from the invention of the Gutenberg printing press to the present, focusing especially on how popular culture evolved in reaction to social, economic, political, and technological change and from local, national, trans-Atlantic and global perspectives. Students engage the questions, debates, methods and approaches of popular culture history.

**HIST 422. THE FRENCH REVOLUTION AND NAPOLEON. (3)** A survey of the period 1789 to 1815 with special emphasis on the political, economic, and social events leading to the birth of modern France.

**HIST 425. MODERN GERMANY. (3)** A survey of German history from the early nineteenth century to the present.

**HIST 426. HITLER AND NAZI GERMANY. (3)** A detailed study of German history between 1933 and 1945, emphasizing political, economic, social, diplomatic, and military aspects.

**HIST 428. ENGLAND SINCE 1914. (3)** A detailed study of the political, intellectual, cultural, and socioeconomic developments that transformed England into a welfare state and its empire into a commonwealth of nations.

**HIST 438. TWENTIETH CENTURY RUSSIA. (3)** A survey of the decline of Imperial Russia, the age of Revolution, and the maturation of the Soviet state.

**HIST 439. RISE AND DECLINE OF COMMUNISM. (3)** A study of the origins, development, and decline of international communism.

**HIST 480. A SOCIAL HISTORY OF SCIENCE. (3)** A study of the cultural and intellectual impact that science has had on the West with an emphasis on the period since the seventeenth century.

#### **AREAS OTHER THAN EUROPE OR THE UNITED STATES**

**HIST 360. HISTORY OF AFRICA. (3)** A survey of the history of sub-Saharan Africa from the earliest times to the present. (Equivalent to AFAM 360.) [GEN ED E]

**HIST 364. COLONIAL LATIN AMERICA, 1400-1825. (3)** Political, social and cultural development of Latin America since 1400, focusing on the Maya, Aztec and Inca civilizations, the period of conquest and three centuries of Spanish and Portuguese colonization. [GEN ED E]

**HIST 365. MODERN LATIN AMERICA, 1800-PRESENT. (3)** A study of the political, social, economic, and cultural development of Latin American republics from their independence in the early 19th century to the present. [GEN ED E]

**HIST 370. MODERN SOUTH ASIA: FROM EMPIRES TO NATIONS. (3)** A study of South Asia from the mid-eighteenth century to the present, focusing on the development of colonialism, capitalism, nationalism and feminism. Major topics include the collapse of the Mughal Empire, the rise and fall of the British Raj and the development of the new nations of India, Pakistan and Bangladesh. [GEN ED E]

**HIST 460. TRADITIONAL EAST ASIA. (3)** A survey of the political, socioeconomic, intellectual, and cultural history of China and Japan from ancient times to 1600.

**HIST 461. MODERN EAST ASIA. (3)** A survey of the political, socioeconomic, intellectual, and cultural history of China and Japan since 1600. [GEN ED E]

**HIST 462. HISTORY OF THE MIDDLE EAST. (3)** A study of the history, religion, and culture of the Middle East from the rise of Islam until the present.

**HIST 464. LATIN AMERICA AND THE UNITED STATES. (3)** An intensive study of the relations between Latin America and the United States.

**HIST 465. THE MEXICAN REPUBLIC. (3)** A study of Mexico from 1824 to the present.

**HIST 471. MODERN CHINA. (3)** A study of the rise of modern China since the seventeenth century, focusing on the decline of the imperial system, the revolutionary struggle, and the triumph of Communism.

**HIST 472. MODERN JAPAN. (3)** An analysis of Japanese history since 1600 with special emphasis on the forces, events, and personalities that transformed Japan from a feudal to a modern state.

**HIST 479. TOPICS IN WORLD HISTORY. (3)** An intensive study of a selected world history topic.

#### **SPECIAL COURSES**

The courses in this category count toward meeting history/social studies major and minor requirements, but do not count toward meeting area requirements.

**HIST 110. INTRODUCTION TO ASIAN CIVILIZATION. (3)** A survey of the histories and cultures of the civilizations of Asia, emphasizing the traditional values which have shaped their development from ancient to modern times. [GEN ED E]

**HIST 200. INTRODUCTION TO LATIN AMERICA. (3)** A broad interdisciplinary introduction to the study of Latin America, emphasizing its regions, peoples, and cultures. [GEN ED E]

**HIST 299. INTRODUCTION TO MILITARY HISTORY. (3)** A study of the development of warfare from the earliest times to the present with emphasis on the modern period and the development of weapons, tactics, and strategy.

**HIST 341. A CULTURAL HISTORY OF ALCOHOL. (3)** *Prerequisite: HIST 119 or HIST 120 or permission of instructor.* An examination of the role that alcohol plays in historical development among various world cultures over time. Instructor may choose to focus on a specific region and/or time period.

**HIST 391. HISTORY OF SPORT. (3)** *Prerequisite: HIST 119 or 120, or permission of instructor.* A study of topics and themes in the history of sport, as well as the historical context in which sport evolved.

**HIST 402. PIRATES IN WORLD HISTORY. (3)** *Prerequisite: HIST 119 or 120 or permission of instructor.* Myths and realities of piracy across the globe and throughout history using movies, novels and historical narratives.

**HIST 404. HISTORY OF ANCIENT EGYPT. (3)** A study of ancient Egyptian civilization with attention to the rediscovery of ancient Egypt by modern scholars and the development of the discipline of Egyptology.

**HIST 420. HISTORY OF SEXUALITY. (3)** *Prerequisite: HIST 119 or 120 or permission of instructor.* Survey of how past societies and cultures have interpreted human sexual behavior and identities.

**HIST 489. COOPERATIVE EDUCATION IN HISTORY. (3)** *Prerequisites: Application for or enrollment in Cooperative Education plan, approval of departmental co-op faculty advisor, and development of a Learning Plan. May be repeated once with departmental approval, but only (3) will count toward history major requirements.* Practical experience in a supervised work station with a cooperating library, museum, archives, or other appropriate organization.

**HIST 490. TOPICS IN HISTORY I. (3)** A detailed study of selected topics in history.

**HIST 491. TOPICS IN HISTORY II. (3)** A detailed study of selected topics in history.

**HIST 492. HISTORY OF CANADA. (3)** A survey of Canada's history and heritage, with special emphasis on Canadian-American relations and interdependency.

**HIST 494. U.S. MILITARY HISTORY. (3)** *Prerequisites: MIL 301, 302 (for ROTC cadets); junior-senior status for all others.* A study that focuses upon the role of the military in American history. Political, economic, social, and cultural aspects of U.S. history are also covered as they pertain to the military.

**HIST 499. ADVANCED INDIVIDUAL STUDY. (1-3)** *Prerequisite: 3.0 average in at least 21 hours of history.* A research problem or intensive readings directed by a faculty member.

#### **HON – HONORS HONORS COLLEGE**

**HON 175. HONORS UNIVERSITY EXPERIENCE-LEADERSHIP. (3)** *Prerequisites: For beginning college freshmen or transfer students with fewer than 24 hours of credit who are accepted into the Honors College.* Transition to University Experience. Topics include advanced study skills, critical thinking skills, explorations of majors and careers, degree programs, campus resources and personal development. Special attention is given to educational requirements and opportunities within the University Honors College leadership education, and developing leadership behaviors and skills.

**HON 250. HONORS PRACTICUM I. (3)** *Prerequisite: Good standing in the Honors College.* First semester course offering a supervised, practical experience for honors students.

**HON 251. CITIZEN AND SELF. (3)** *Prerequisite/Corequisite: Good standing in the Honors College or Honors eligibility (minimum 3.2 GPA).* Sophomore standing or approval from instructor required.



## Course Descriptions

**HON 275. HONORS INTERNSHIP I. (3)** *Prerequisite: Good standing in the Honors College.* First semester course offering practical experience for honors students in a supervised work situation with a cooperative organizations, agency, or entity.

**HON 350. HONORS PRACTICUM II. (3)** *Prerequisites/corequisites: HON 250 and good standing in the Honors College.* Second semester course offering a supervised, practical experience for honors students.

**HON 375. HONORS INTERNSHIP II. (3)** *Prerequisites/corequisites: HON 275 and good standing in the Honors College.* Second semester course offering practical experience for honors students in a supervised work situation with a cooperative organization, agency, or entity.

**HON 402. CE/ T PROPOSAL WRITING COURSE. (1)** *Prerequisites: ENG 100; Honors College student or instructor's permission.* Assistance in formulating and writing a Capstone Experience /Thesis (CE/ T) proposal.

**HON 490. SPECIAL TOPICS. (3)** A detailed study of selected topics. May be repeated once for credit.

### COLLOQUIUM

**HON 300. HONORS COLLOQUIUM. (1-4)** Honors colloquia are interdisciplinary in nature, and emphasize student-directed learning. Students participate in and lead discussions on various aspects of the broad topic, and select specify issues on which to base analytical writing projects.

**HON 301. HONORS COLLOQUIUM. (1-4)** Honors colloquia are interdisciplinary in nature, and emphasize student-directed learning. Students participate in and lead discussions on various aspects of the broad topic, and select specify issues on which to base analytical writing projects

### INDEPENDENT RESEARCH

**HON 203. INDEPENDENT RESEARCH. (1-3)** Independent research allows students to engage in research, creative activities, or in-depth study of a topic under the direction of a faculty member.

**HON 303. INDEPENDENT RESEARCH. (1-3)** Independent research allows students to engage in research, creative activities, or in-depth study of a topic under the direction of a faculty member.

**HON 403. HONORS THESIS/PROJECT I. (1-3)** First three credit hours of 6-hour Capstone Experience/ Thesis Project (CE/ T).

**HON 404. HONORS THESIS/ PROJECT II. (1-3)** *Prerequisite: HON 403.* Final three credit hours of 6-hour Capstone Experience/Thesis Project (CE/ T).

### HORT – HORTICULTURE DEPARTMENT OF AGRICULTURE

**HORT 209. FLORAL DESIGN. (3)** Principles and elements of floral design; the use of floral materials, design techniques, and elements including line, form, texture and color; emphasis on the history and use of floral art in business and society. (course fee)

**HORT 301. INTRODUCTION TO LANDSCAPE PLANTS . (2)** *Corequisite: HORT 302. Prerequisite: AGRO 110.* Identification, recognition and use of deciduous trees, shrubs and herbaceous plants in the landscape. Introduction to evergreen shrubs and trees as well as fall flowering bulbs and perennials are included.

**HORT 302. INTRODUCTION TO LANDSCAPE PLANTS LABORATORY. (1)** *Corequisite: HORT 301.* A laboratory course correlated with HORT 301.

**HORT 304. LANDSCAPE MAINTENANCE. (2)** *Corequisite: HORT 305. Prerequisite: AGRO 110.* Maintenance of landscape plants including trees, shrubs, annuals, perennials, and turf; proper use of equipment, fertilizers, and pesticides. Landscape maintenance business practices are included.

**HORT 305. LANDSCAPE MAINTENANCE LABORATORY. (1)** *Corequisite: HORT 304.* A laboratory course correlated with HORT 304.

**HORT 309. ADVANCED FLORAL DESIGN. (3)** *Prerequisite: HORT 209.* Advanced principles of floral design as applied to a commercial floral shop enterprise. Production cost and profit analysis, selling, techniques and customer relations are considered concurrently with design. (course fee)

**HORT 312. INTRODUCTION TO HORTICULTURE. (3)** *Prerequisite: AGRO 110.* Emphasis is given to principles of growth, development and management of major horticulture plants. Special consideration is given to major horticultural crops of Kentucky.

**HORT 313. TURFGRASS MANAGEMENT. (3)** *Prerequisite: AGRO 110 or permission of instructor.* A study of turfgrass, including adaption, identification, uses and fundamental principles essential for establishing and maintaining quality turf in lawns and recreation areas.

**HORT 316. GREENHOUSE PRODUCTION. (2)** Structures, equipment, and cultural techniques for growing floriculture crops with special emphasis on the production of container plants, foliage crops and bedding plants.

**HORT 317. GREENHOUSE PRODUCTION LABORATORY. (1)** *Corequisite: HORT 316.* A laboratory course correlated with HORT 316.

**HORT 330. WEDDING FLORAL DESIGN. (3)** *Prerequisite: HORT 209.* Principles and elements of floral design as applied to wedding planning and design. Includes production cost and profit analysis and marketing techniques. (course fee)

**HORT 401. LANDSCAPE PLANTS II. (2)** *Corequisite: HORT 402. Prerequisite: HORT 301 or permission of instructor.* Identification, recognition and use of landscape plants; with emphasis on evergreens, annuals, perennials and bulbs, winter effect and flowering sequence of deciduous trees and shrubs will be included.

**HORT 402. LANDSCAPE PLANTS II LABORATORY. (1)** *Corequisite: HORT 401.* A laboratory course correlated to HORT 401.

**HORT 403. LANDSCAPE DESIGN AND CONSTRUCTION. (2)** *Corequisite: HORT 404. Prerequisite: HORT 402 or permission of instructor.* Design of residential and commercial landscapes; techniques and materials for construction of landscape features such as decks, patio covers, walls, patios, pools, and irrigation are presented.

**HORT 404. LANDSCAPE DESIGN AND CONSTRUCTION LABORATORY. (1)** *Corequisite: HORT 403.* A laboratory course correlated with HORT 403.

**HORT 405. NURSERY MANAGEMENT. (2)** *Corequisite: HORT 406. Prerequisite: AGRO 110.* An introduction to the organization and management of a landscape plant nursery for container and field grown stock. Students will design and plan a working nursery for south central Kentucky.

**HORT 406. NURSERY MANAGEMENT LABORATORY. (1)** *Corequisite: HORT 405.* A laboratory course correlated with HORT 405.

**HORT 407. PLANT PROPAGATION. (2)** *Corequisite: HORT 408. Prerequisite: AGRO 110.* Plant propagation is studied and practiced as an art and a science. Sexual and asexual techniques include propagation by seed, cuttings, grafting, layering, division and tissue culture.

**HORT 408. PLANT PROPAGATION LABORATORY. (1)** *Corequisite: HORT 407.* A laboratory course correlated with HORT 407.

**HORT 412. MODERN FRUIT PRODUCTION. (3)** *Prerequisite: AGRO 110.* Production, harvesting, post-harvesting handling and marketing of the major tree and small fruit of the temperate region. Emphasis is given to those crops adaptable to Kentucky.

**HORT 419. VEGETABLE PRODUCTION. (3)** *Prerequisite: AGRO 110 or permission of instructor.* Production of vegetables that are particularly suited for Kentucky, considering variety selection, culture, harvesting, processing, and marketing.

**HORT 475. SELECTED TOPICS IN AGRICULTURE. (1-3)** *Prerequisite: Consent of instructor.* Special topics acquaint advanced undergraduate students with scientific developments of current interest in agriculture. Appropriate topic titles are assigned. Lecture and assignments vary with credit. May be repeated with change in content.

### HUM – HUMANITIES POTTER COLLEGE OF ARTS AND LETTERS

*\*Note: Humanities Semester courses must be taken together and not as individual courses.*

#### ANCIENT GREECE AND ROME

**HUM 191. FINE ARTS OF ANCIENT GREECE AND ROME. (3)** A study of classical painting, sculpture, and architecture. [GEN ED B-II]

**HUM 192. LITERATURE AND DRAMA OF ANCIENCE GREECE AND ROME. (3)** This course includes the works of the Greek tragedians, Homer, Aristophanes, and Vergil. [GEN ED B-I]

**HUM 193. PHILOSOPHY AND RELIGION OF ANCIENT GREECE AND ROME. (3)** A survey of the Greek gods and such philosophers as Socrates, Plato, Aristotle, and Augustine. [GEN ED B-II]

#### MEDIEVAL AND RENAISSANCE EUROPE

**HUM 171. FINE ARTS OF MEDIEVAL AND RENAISSANCE EUROPE. (3)** A study of art and architecture in the Middle Ages and Renaissance which includes the great cathedrals and the Renaissance masters. [GEN ED B-II]

**HUM 172. LITERATURE OF MEDIEVAL AND RENAISSANCE EUROPE. (3)** A literary survey of the Middle Ages and Renaissance, which includes Beowulf, Chaucer, Dante and Shakespeare. [GEN ED B-I]

**HUM 173. PHILOSOPHY AND RELIGION OF MEDIEVAL AND RENAISSANCE EUROPE. (3)** A study of the major philosophical and religious developments from St. Augustine through the Reformation. [GEN ED B-II]

#### MODERN WESTERN WORLD

**HUM 181. FINE ARTS OF THE MODERN WESTERN WORLD. (3)** A study of painting, sculpture, and architecture from the late eighteenth century to the present. [GEN ED B-II]

**HUM 182. LITERATURE OF THE MODERN WESTERN WORLD. (3)** This course surveys the great literary works of the past two centuries in the West. [GEN ED B-I]

**HUM 183. PHILOSOPHY AND RELIGION OF THE MODERN WESTERN WORLD. (3)** A study of philosophical and religious developments in the contemporary period. [GEN ED B-II]

#### IDST – INTERDISCIPLINARY STUDIES DEPARTMENT OF INTERDISCIPLINARY STUDIES

**IDST 369. CAREER RELATED FIELD EXPERIENCE. (1-3)** *Prerequisites:* Junior or senior standing with a declared major. *Instructor permission is required. Work arrangements approved through the Career Services Center with instructor consultation.* Supervised work experience related to a student's field of study or career goals within a cooperating business, industry, or agency. Students should work directly with the Career Services Center and course instructor to identify goals, secure appropriate work experience, and review course requirements. Students are responsible for all internship-related transportation and travel. Students may repeat twice for a maximum of 3 total hours.

**IDST 375. SEMINAR IN PEER MENTORING. (3)** *Prerequisites:* UC 175 or equivalent, junior standing and instructor permission. An introduction to effective mentoring techniques including an examination of mentoring theories and styles.

**IDST 376. PRACTICUM IN PEER MENTORING. (1)** *Prerequisites:* UC 375 with a grade of "B" or higher and instructor permission. Supervised mentoring experience in appropriate first year student setting. (Grading: Pass/Fail)

**IDST 399. SPECIAL TOPICS IN INTERDISCIPLINARY STUDIES. (3)** *Prerequisite:* Junior standing or permission of the instructor. A detailed study of selected topics in interdisciplinary studies that lend themselves to interdisciplinary problem solving. Course may be repeated one time with a different topic.

**IDST 495. INTERDISCIPLINARY STUDIES CAPSTONE. (3)** *Prerequisites:* BIS major (558), senior standing, or permission of the instructor. Examination of interdisciplinary scholarship and problem-solving, with application based on students' area of emphasis in the major.

#### IECE – INTERDISCIPLINARY EARLY CHILDHOOD EDUCATION SCHOOL OF TEACHER EDUCATION

**IECE 321. FAMILY SUPPORTS AND SERVICES. (3)** *Prerequisites:* FACS 192, and EXED 330. *Corequisites:* CD 481, IECE 322 and IECE 323; or instructor permission. Application of family systems theory. The development of family plans and the implementation of family-centered services is stressed. Minimum of 25 hours of field experiences; students are responsible for arranging their own transportation.

**IECE 322. PLANNING CURRICULUM AND INSTRUCTION FOR DIVERSE LEARNERS. (3)** *Prerequisites:* FACS 295 and FACS 296. *Corequisites:* CD 481, IECE 321, and IECE 323; or instructor permission. Planning for curriculum and instruction of children birth through five years who are culturally and linguistically diverse or who have developmental delays and disabilities.

**IECE 323. POSITIVE BEHAVIORAL SUPPORTS WITH YOUNG CHILDREN. (3)** *Prerequisites:* FACS 295 and 296. *Corequisites:* CD 481, IECE 321 and 322; or instructor permission. Knowledge and skills necessary for applying the principles of positive behavioral supports with young children. Field experience is required; students are responsible for their own transportation.

**IECE 324. ADVANCED ASSESSMENT OF YOUNG CHILDREN. (3)** *Prerequisites:* FACS 294, PE 313, IECE 321, IECE 322, and IECE 323; or instructor permission. *Corequisites:* EXED 422, IECE 325, IECE 326, and LTCY 310; or instructor permission. Advanced training to develop assessment skills with children from birth to primary age, with and without disabilities, and their families. Minimum of 30 hours of field experiences; students are responsible for their own transportation.

**IECE 325. PARTNERSHIPS WITH FAMILIES. (3)** *Prerequisites:* CD 481, IECE 321, IECE 322 and IECE 323; or instructor permission. *Corequisites:* IECE 324, IECE 326, EXED 422, and LTCY 310; or instructor permission. Strategies that early childhood educators employ to develop active partnerships with families. Field experience is required. Students are responsible for their own transportation.

**IECE 326. INTEGRATING MATHEMATICS AND SCIENCE ACROSS THE EARLY CHILDHOOD CURRICULUM. (3)** *Prerequisites:* CD 481, IECE 321, IECE 322 and IECE 323; or instructor permission. *Corequisites:* IECE 324, 325, EXED 422, and LTCY 310; or instructor permission. Methods for active involvement of young children in the areas of mathematics and science in developmentally appropriate ways. Field experience is required; students are responsible for their own transportation. Course fee will be assessed.

**IECE 421. ADVANCED CURRICULUM AND INSTRUCTION FOR INFANTS AND TODDLERS. (3)** *Prerequisites:* IECE 324, IECE 325, IECE 326, EXED 422 and LTCY 130; or instructor permission. *Corequisites:* IECE 422, EXED 419, and EXED 432; or instructor permission. Implementation of curriculum and instruction of children birth through two years, both with and without disabilities, and their families will be addressed. Students will be prepared to implement services in both home and center-based settings. Field experience is required; students are responsible for their own transportation. Course fee will be assessed.

**IECE 422. ADVANCED CURRICULUM DEVELOPMENT FOR YOUNG CHILDREN. (3)** *Prerequisites:* IECE 324, IECE 325, IECE 326, and EXED 422; or instructor permission. *Corequisites:* IECE 421, EXED 419 and EXED 432; or instructor permission. Advanced preparation in planning, implementing and evaluating curricula and instructional strategies/methods for children from birth to primary age. A wide range of student diversity is addressed, including ability, culture and language. Minimum of 30 hours of field experiences; students are responsible for their own transportation.

**IECE 423. INTERDISCIPLINARY SERVICES FOR YOUNG CHILDREN WITH LOW INCIDENCE DISABILITIES. (3)** *Prerequisites:* IECE 321, IECE 322, and IECE 323; or instructor permission. Characteristics of children birth through five years with low incidence disabilities (e.g., autism, sensory impairments, physical impairments), as well as assessment and instructional strategies. The role of the transdisciplinary team, including family members, in providing services will be emphasized. Field experience is required; students are responsible for their own transportation.

**IECE 489. PRACTICUM SEMINAR IN INTERDISCIPLINARY EARLY CHILDHOOD EDUCATION. (1)** *Prerequisites:* IECE 421 and 422 with grades of "C" or higher. *Corequisite:* IECE 491. Discussion of a reflection on the practicum placement, as well as career planning. This course prepares IECE majors to apply knowledge learned in previous courses.

**IECE 490. STUDENT TEACHING (INFANTS AND TODDLERS) (5) (PRESCHOOLERS) (5)** *Prerequisites:* Admission to Teacher Education and admission to student teaching *Corequisite:* EDU 489. Supervised assignment in approved setting where young children with and without disabilities and their families are served. Must complete a minimum of sixteen weeks in one or two placements depending on certification requirements. Students follow the academic calendar of the setting in which they are placed and are responsible for providing their own transportation to assigned site(s).

**IECE 491. PRACTICUM IN INTERDISCIPLINARY EARLY CHILDHOOD EDUCATION. (5)** *Prerequisites:* IECE 421 and IECE 422, with grades of "C" or higher. *Corequisite:* IECE 489. Supervised work in off-campus settings with children birth to age 5, with and without disabilities, and their families. Students are responsible for arranging their own transportation.

#### INS– INFORMATION SYSTEMS DEPARTMENT OF PROFESSIONAL STUDIES

**INS 181C. COMPUTER PROGRAMMING I. (3)** *Prerequisite:* DMA 096C or background for eligibility for MA 116C. This course provides an introduction to program design and development. A structured approach to problem solving, program definition and design methodologies is stressed. The student will be assigned several programming problems.

**INS 182C. COMPUTER OPERATING SYSTEM. (3)** This course provides a thorough study of an operating system command set. This includes topics in file management, disk organization, memory management, virus safeguarding and system configuration.

**INS 200C. PC HARDWARE. (3)** *Prerequisites:* CSCI 145C and INS 182C. This course introduces microcomputing hardware and the principle functions of hardware components. The student learns the history of computer hardware as well as the details of internal addressing, interrupt priorities, and hardware diagnostics. Students will also install hardware components such as CPU's, memory, storage devices, communication devices, and display adaptors.

**INS 270C. ELECTRONIC SPREADSHEETS. (3)** This course provides the student the foundation needed to utilize a spreadsheet for business applications. Design concepts, databases, charts and macros will be examined thoroughly along with the major built-in functions. Students will design several spreadsheets both in and out of class to solve specific business problems. (course fee)

## Course Descriptions

**INS 272C. DATABASE MANAGEMENT. (3)** This course addresses the design and maintenance of a database system. Topics of emphasis are writing of data queries, data redundancy and validation, sorting, reporting, and database programming. The student will design, create and manipulate several databases and also write database programs. (course fee)

**INS 275C. WEB PAGE DESIGN. (3)** Covers web page design concepts and practice. Students will utilize software to design web pages and web sites that are attractive, use-friendly, and functional. Emphasis on both planning and creating a web site. (course fee)

**INS 281C. COMPUTER PROGRAMMING II. (3)** *Prerequisite: INS 181C.* This course is a continuation of INS 181. An introduction to simple data structures and their applications is included. The student will be assigned several programming problems.

**INS 285C. ADVANCED SOFTWARE APPLICATIONS. (3)** This course provides the opportunity for the students to install, configure, evaluate and use a variety of software applications on single user systems and in a network environment. Software proficiency is emphasized as the need for end-user support is vital in both networked and stand-alone systems. This course will provide problem recognition and problem resolution experience at the system and application level.

**INS 288C. NETWORK ADMINISTRATION. (3)** *Prerequisite: INS 182.* This course provides the student the opportunity to analyze a system at the network operating system (NOS) level. A NOS will be available for installation providing client/server administration experience. Various network analysis problems will be examined. Study of the design of local area networks and wide area networks will be included as will maintenance issues.

**INS 290C. INTERNSHIP-INFORMATION SYSTEMS. (3)** *Prerequisite: Instructor's permission.* Provides the advanced student with a practical working-learning opportunity. Periodic seminars and outside assignments related to the job are required. (Grading: Pass/Fail)

### INT – INTERCULTURAL STUDIES DEPARTMENT OF FOLK STUDIES AND ANTHROPOLOGY

**INT 450. FOREIGN FIELD STUDIES. (1-12)** The course will focus on significant aspects of the culture under investigation, particularly the fine arts, the economy, the land and geography, the government, the history, the anthropological development, and the language and literature. The emphasis will be on contemporary culture and civilization, but with a look toward the past. (Contact the Office of International Programs and Projects.)

### ICSR INSTITUTE FOR CITIZENSHIP AND SOCIAL RESPONSIBILITY

**ICSR 300. PUBLIC PROBLEM SOLVING. (3)** An applied learning experience focused on broad-based form of community organizing and development generally aimed at building capacity for democratic engagement in both rural and urban environments.

**ICSR 499. PUBLIC WORK CAPSTONE EXPERIENCE. (1-3)** *Prerequisite: ICSR 300 and permission of instructor.* A capstone experience in which students engage in and reflect upon public work. Repeatable up to six hours.

### ITAL – ITALIAN DEPARTMENT OF MODERN LANGUAGES

**ITAL 100. ITALIAN LANGUAGE AND CULTURE. (1-3)** An introduction to Italian and Italian-speaking culture in conjunction with study abroad for students with little or no previous language study. Does not fulfill the general education foreign language requirement. May be repeated for a total of three credits.

**ITAL 101. ELEMENTARY ITALIAN I. (3)** A beginning course designed to develop skills in understanding, speaking, reading and writing and to provide cultural insights. (course fee) [GEN ED A-II]

**ITAL 102. ELEMENTARY ITALIAN II. (3)** *Prerequisite: ITAL 101 or one year of high school Italian.* Continuation of development of four skills and of cultural insights. (course fee) [GEN ED A-II]

**ITAL 105. ELEMENTARY ITALIAN II. (3)** Survey of the contemporary culture of Italy, with emphasis on values, behavioral characteristics, social and political structures, and achievements of Italian-speaking people. Taught in English; only taught abroad.

### JAPN – JAPANESE DEPARTMENT OF MODERN LANGUAGES

**JAPN 100. JAPANESE LANGUAGE AND CULTURE ON-SITE. (1-3)** An introduction to Japanese and Japanese-speaking culture in conjunction with study abroad for students with little or no previous language study. Does not fulfill the general education foreign language requirement. May be repeated for a total of three credits.

**JAPN 101. ELEMENTARY JAPANESE I. (3)** Introduction to pronunciation, grammar, and basic functional vocabulary of modern Japanese. Includes aspects of contemporary Japanese culture. (course fee) [GEN ED A-II]

**JAPN 102. ELEMENTARY JAPANESE II. (3)** *Prerequisite: JAPN 101 or equivalent.* Continuation of Japanese 101 using Hiragana and Katakana writing systems, grammar, and basic additional vocabulary of modern Japanese. Includes aspects of contemporary Japanese culture. (course fee) [GEN ED A-II]

**JAPN 115. INTRODUCTION TO JAPANESE CULTURE. (3)** Survey of the contemporary culture of Japan, with emphasis on values, behavioral characteristics, social and political structures, and achievements of the Japanese-speaking people. Taught in English; only taught abroad.

**JAPN 201. INTERMEDIATE JAPANESE I. (3)** *Prerequisites: JAPN 102 or two years of high school Japanese. Expansion of communication skills in increasingly complex and varied situations. Emphasis on conversational speaking, presentational writing and speaking, and understanding culturally specific texts and media.* [GEN ED A-II]

**JAPN 210. INTERMEDIATE JAPANESE CONVERSATION ABROAD. (1-3)** *Prerequisite: JAPN 102 or equivalent.* Course designed to develop the vocabulary and communication skills of a student with one year of college Japanese or equivalent, with emphasis on contact with Japanese native speakers. Taught in Japanese. May be repeated for a total of three credits.

**JAPN 211. INTERMEDIATE JAPANESE CULTURE ABROAD. (1-3)** *Prerequisite: JAPN 102 or equivalent.* Course designed to develop an appreciation for different aspects of Japan and its people and culture, for a student with one year of college Japanese or equivalent. Taught in Japanese. May be repeated for a total of three credits.

### JOUR – JOURNALISM SCHOOL OF JOURNALISM & BROADCASTING

**JOUR 131. INTRODUCTION TO DIGITAL PHOTOGRAPHY. (3)** Introduces non-photjournalism majors to the processes and aesthetic values of digital photography, including light, composition, content and ethics. Concepts applied through hands-on projects. Students must bring digital camera to first class meeting. (course fee)

**JOUR 154. NEW MEDIA LITERACY: EXPLORATIONS IN PARTICIPATORY CULTURE. (3)** Develops a framework to access, analyze, evaluate, create and interact with messages in a variety of digital forms, including social media. Restricted to majors/minors outside the School of Journalism & Broadcasting.

**JOUR 201. MEDIA AND SOCIETY. (3)** A study of newspapers, radio and television, magazines, public relations, advertising and allied topics. Includes consideration of communication theory, current practices, history, involvement of minorities and women, legal restrictions, ethics, government-press relations and career opportunities. (Must be taken by majors prior to enrolling in any 300-level course.)

**JOUR 202. INTRODUCTION TO MEDIA WRITING. (3)** Writing to print, online and broadcast media, and public relations with primary focus on news writing. Accuracy, responsibility, clarity, style and structure techniques emphasized. (course fee)

**JOUR 231. INTRODUCTION TO PHOTOJOURNALISM. (3)** Introduces photojournalism majors to the technical, aesthetic and ethical aspects of digital photography through weekly projects. Adjustable digital SLR camera required. Must bring camera to first day of class. (course fee)

**JOUR 232. ELECTRONIC TECHNOLOGIES FOR JOURNALISM. (3)** *Prerequisite: Must be enrolled in a major in the School of Journalism & Broadcasting.* A hands-on introduction to computer programs and technologies used by journalists and other media practitioners to collect, process, analyze and publish information. (course fee)



**JOUR 261. INTRODUCTION TO MULTIMEDIA. (3)** *Prerequisites: JOUR 231 (Photojournalism majors), JOUR 131 (non-majors).* Journalistic storytelling on the Web and other forms of electronic communication using photographs, words, audio, video, screen design, and navigation. Weekly assignments require transportation, digital SLR camera, audio recording device, and external hard drive. (course fee)

**JOUR 300. RESEARCH IN ADVERTISING AND PUBLIC RELATIONS. (3)** *Prerequisites: JOUR 201, 202, 232, MKT 220, a course in statistics (ECON 206, SOCL 300, MATH 183, PSY 301 or AMS 271) and either JOUR 355 for majors in public relations or JOUR 341 for majors in advertising.* Prepares students to perform and supervise preliminary research in advertising and public relations environments. Includes consumer analysis, media tracking, attitude measurement, copy testing, online research and evaluation of externally supplied research.

**JOUR 301. PRESS LAW AND ETHICS. (3)** *Prerequisites: JOUR 201, 202 and junior standing, or permission of instructor.* An in-depth study of concepts basic to freedom of expression, with emphasis on libel, privacy, free-press and fair-trial guidelines, access to government information, and obscenity. Attention is given to attendant ethical considerations.

**JOUR 302. INTERMEDIATE REPORTING. (3)** *Prerequisites: JOUR 201, 202.* Reporting and writing for print and online media. Emphasis on using journalistic style and grammar, interviewing and writing news stories on a range of topics including governmental affairs. (course fee)

**JOUR 323. NEWS EDITING. (3)** *Prerequisites: JOUR 202.* A course of basic instruction in copy editing and headline writing, as well as an introduction to picture handling, cutline writing, and the use and abuse of the language.

**JOUR 325. FEATURE WRITING. (3)** *Prerequisites: JOUR 302 and 323, or permission of the instructor.* A professional reporting course that teaches feature writing and marketing of feature articles for magazines and newspapers. (course fee)

**JOUR 333. LIGHTING TECHNOLOGIES. (3)** *Prerequisites: JOUR 231, 261.* Lighting techniques used in the studio and on-location applied through weekly portrait, feature, and picture story assignments. Discussion includes interviewing techniques and ethics. On-location lighting equipment and digital SLR camera required. (course fee)

**JOUR 334. PICTURE STORIES. (3)** *Prerequisite: JOUR 336.* Extensive use of the multiple-picture project to develop skills in visual storytelling, caption writing, and ethics. Digital SLR camera, compact flash cards, and external hard drive required. (course fee)

**JOUR 336. PICTURE EDITING. (3)** *Prerequisites: JOUR 333 (Photojournalism majors); JOUR 131, 232 (News-Editorial majors); or permission of the instructor.* A study of the process of making informed and ethical decisions concerning the publication of photographs. Topics include picture choice, design, and photo management. (course fee)

**JOUR 340. CREATIVE STRATEGY AND COPYWRITING. (3)** *Prerequisite: JOUR 341.* Aids students in developing skills in creative strategic thinking and in writing advertising copy for a variety of media including magazines, newspapers, television, radio and the Internet. (course fee)

**JOUR 341. PRINCIPLES OF ADVERTISING. (3)** *Prerequisites: JOUR 201 and 202 (for journalism majors).* A survey course in the fundamental principles and practices of advertising including study of the techniques of creating advertisements, functions of advertising agencies, budgets, media selection, research and other topics.

**JOUR 343. PRINT DESIGN, PRODUCTION AND TYPOGRAPHY. (3)** *Prerequisites: JOUR 201, 202 and 232 or successful completion of final exam in JOUR 232.* Introduction to practical and creative aspects of designing and preparing materials for print media. This computer-aided course includes design, layout and typography for preparing newspaper, magazine, advertising and promotional publications materials for various print processes. (course fee)

**JOUR 344. ADVERTISING IN A DIGITAL WORLD. (3)** *Prerequisite: JOUR 341 or permission of instructor.* Theory and practice of incorporating new technology into advertising campaigns. Emphasis on advertising strategy development utilizing interactive technology and computer presentation skills. (course fee)

**JOUR 345. COPYWRITING AND LAYOUT. (3)** *Prerequisites: JOUR 343 and a satisfactory rating on a portfolio review.* A practical course in the creation of advertisements for print and broadcast media. Includes considerations of audience, product or service, theories, practices and appeals. (course fee)

**JOUR 346. ADVERTISING ACCOUNT PLANNING. (3)** *Prerequisite: JOUR 300 or permission of instructor.* Advertising minors may substitute MKT 220 for JOUR 300. Designed to provide information and discussion on campaign strategy development in an advertising agency setting. Advertising campaigns today may integrate advertising, sales promotion, direct marketing and public relations.

**JOUR 348. INTRODUCTION TO INTERACTIVE AD DESIGN. (3)** *Prerequisite: JOUR 341 or permission of the instructor.* Study and creation of interactive advertising, using current software programs. Develop interactive ads for Web and mobile applications. Cover aesthetic and technical aspects of design and production, business process and working in teams to produce Web-based products. (course fee)

**JOUR 349. ADVERTISING MEDIA. (3)** *Prerequisite: JOUR 300.* Advertising minors may substitute MKT 220 for JOUR 300. Study and evaluation of principal advertising media, including newspapers, magazines, trade publications, radio, television and outdoor. Includes consideration of media and audiences, media rates, budgeting, negotiating, scheduling and evaluations.

**JOUR 354. INTERNATIONAL PUBLIC RELATIONS. (3)** *Prerequisite: Junior standing.* Issues and processes relating to the practice of international public relations, including international public relations campaign and business styles.

**JOUR 355. FUNDAMENTALS OF PUBLIC RELATIONS. (3)** *Prerequisites: JOUR 201 and JOUR 202 (for journalism majors), typing skills.* Introduction to principles, practices and theory of public relations. Provides basic understanding of role played by PR in society; historical, ethical and sociological foundations of PR; and tasks and functions performed in organizations by those responsible for managing and implementing PR activities.

**JOUR 358. PUBLIC RELATIONS WRITING AND PRODUCTION. (3)** *Prerequisites: JOUR 232, 355.* Writing and production of print and electronic messages to achieve organizational objectives. Includes writing styles appropriate for various media and publication design strategies to achieve public relations goals. (course fee)

**JOUR 362. WEB NARRATIVES. (3)** *Prerequisite: JOUR 334.* Web-based narratives course involving weekly assignments using photography, audio, and video. Web ethics explored. Transportation, digital SLR camera, external hard drive, and audio equipment required. (course fee)

**JOUR 421. AMERICAN PRESS HISTORY. (3)** Major events and personalities in the development of print and electronic journalism, advertising and public relations from Gutenberg to the present, with future projections. Includes consideration of involvement of minorities and women. Analysis of contemporary journalism in the context of its history.

**JOUR 422. CURRENT ISSUES IN MASS COMMUNICATION. (3)** *Prerequisite: 18 hours of journalism for journalism majors.* A senior-level seminar designed as a capsule course for journalism students focusing on a variety of topics including, but not limited to, access to the media, protection of confidential sources, objectivity, fairness, the media influence on the decision-making process, and the new technology. Capstone course for the mass communication major.

**JOUR 426. ADVANCED REPORTING. (3)** *Prerequisite: JOUR 325.* Designed to produce for publication in-depth news reporting, including reporting on government affairs, using interviewing, observation and public records research skills coupled with computer assisted reporting. Capstone course for news/editorial curriculum. (course fee)

**JOUR 427. SCHOOL JOURNALISM. (3)** *Prerequisite: Senior or graduate standing.* A course designed to meet the state requirements for secondary certification in journalism. Explores resources available to journalism teachers and the responsibility of publications advisors.

**JOUR 428. NEWSPAPER MANAGEMENT. (3)** *Prerequisite: 18 hours of journalism or permission of instructor.* Critiquing of the decision-making process and of solutions reached by newspaper management. Topics will include circulation, promotion, advertising, production, managing newsroom personnel, and the law regarding newspaper publication and distribution.

**JOUR 432. PHOTOJOURNALISM PRACTICUM. (3)** *Prerequisite: JOUR 362.* Practical application of concepts and skills introduced in previous photojournalism courses through work with campus and regional publications, both traditional and online. Emphasis on deadline reporting involving sports, news, and features, and how to work with ethical situations that arise from these events. Transportation, digital SLR camera, and audio equipment required. (course fee)

## Course Descriptions

**JOUR 436. PHOTOJOURNALISM PROJECTS. (3)** *Prerequisite: JOUR 432.* Capstone for photojournalism major, emphasis on the long-term project and conceptual assignments. Ethics discussed. In addition to projects, each student will present a final portfolio to reflect mastery of skills. Guest lecturers from the photojournalism field enhance student learning. Transportation, digital SLR camera, and audio equipment required. Video camera recommended. (course fee)

**JOUR 439. ADVANCED STUDIO LIGHTING TECHNIQUES. (3)** *Prerequisite: JOUR 333.* Advanced lighting techniques for studio photography. Techniques applied to portrait and still-life assignments. Advanced interviewing techniques for portrait work. The business of a working studio will be explored. Final project includes a portfolio and business plan. Off campus travel required. (course fee)

**JOUR 443. INTERACTIVE ADVERTISING DESIGN. (3)** *Prerequisites: JOUR 348 and 343; or permission of instructor.* A survey course in the fundamental principles and practices of advertising including study of the techniques of creating advertisements, functions of advertising agencies, budgets, media selection, research and other topics. (course fee)

**JOUR 444. ADVANCED INTERACTIVE ADVERTISING DESIGN. (3)** *Prerequisite: JOUR 443 or permission of instructor.* An advanced course to aid students in creating portfolios of their interactive design work. Provides an opportunity to use multi-media techniques in advertising projects. Capstone course for the Interactive Advertising emphasis in the advertising curriculum. (course fee)

**JOUR 445. ADVANCED COPYWRITING AND LAYOUT. (3)** *Prerequisites: JOUR 345 and senior standing.* Aids advertising students in developing writing and designing portfolios of their work. Includes advertisements created for magazines, newspapers, direct mail, collateral and other print media. Intensive use of computer programs associated with advertising design. Capstone course for the Print Advertising option in the advertising curriculum. (course fee)

**JOUR 446. ADVERTISING CAMPAIGNS. (3)** *Prerequisite: JOUR 349.* Preparation of an advertising campaign including research, marketing, creative, media and sales promotion plans. Capstone course for the Account Services emphasis in the advertising curriculum. (course fee)

**JOUR 448. ADVERTISING INTERNSHIP OR PRACTICUM. (3)** *Prerequisites: 18 hours in the major and permission of sequence head.* Professional-quality experience outside or inside the University for a fixed period of time and conforming to standards established by the School. Follow-up will consist of student reports and evaluation.

**JOUR 454. PUBLIC RELATIONS STRATEGY AND PLANNING. (3)** *Prerequisites: JOUR 300, 323, 358.* Course in conceptualizing, managing, monitoring and implementing specialized programs. Practical guidance and experience in applying logic, implementation and evaluation and development of PR case studies. Actual clients are often used. (course fee)

**JOUR 456. PUBLIC RELATIONS MANAGEMENT. (3)** *Prerequisites: JOUR 300, 454.* Advanced course in conceptualizing, managing, monitoring and implementing specialized commercial and social programs for corporate, service and government institutions. This capstone course in PR involves interaction with actual clients. (course fee)

**JOUR 458. PR INTERNSHIP OR PRACTICUM. (3)** *Prerequisites: 18 hours in the major and permission of sequence head.* Professional-quality experience outside or inside the University for a fixed period of time and conforming to minimum standards established by the School. Follow-up will consist of student reports and employer evaluation.

**JOUR 481. PROBLEMS IN MASS COMMUNICATION. (3)** Study of contrived and real problems involving research, planning and implementation.

**JOUR 491. INTERNSHIP OR PRACTICUM. (3)** *Prerequisites: 18 hours in the major and permission of sequence head.* Professional-quality experience outside or inside the University for a fixed period of time and conforming to minimum standards established by the School. Follow-up will consist of student reports and evaluation.

**JOUR 495. COLLABORATIVE JOURNALISM. (3)** *Prerequisites: JOUR 362 (photo majors); JOUR 325 (News/Editorial majors); BCOM 361 or 366 or 368 (Broadcasting majors); JOUR 443 (Ad majors); JOUR 358 (PR majors); or permission of sequence coordinator; and consent of the instructor or participation in iMedia certification.* Demonstrates, through supervised practical application, how to work in a multimedia environment to tailor news stories for distribution through various media including: Web, print, broadcast, and mobile media. (course fee)

### LEAD / LEA – LEADERSHIP STUDIES CENTER FOR LEADERSHIP EXCELLENCE (LEAD) DEPARTMENT OF LIBERAL ARTS AND SCIENCES (LEA)

**LEAD 200 / LEA 200C. INTRODUCTION TO LEADERSHIP STUDIES. (3)** *Prerequisite: Open to students of at least sophomore standing.* An introduction to the basics of effective leadership including an investigation of leadership theories and assessment of leadership styles. [GEN ED C]

**LEAD 325. LEADING CHANGE. (3)** *Prerequisite: LEAD 200 or instructor's permission.* Study of processes and skills impacting a leader's ability to implement change, emphasizing the analysis of various existing models to produce sound solutions.

**LEAD 330. LEADERSHIP ETHICS AND DECISION-MAKING. (3)** *Prerequisite: LEAD 200 or instructor's permission.* Study of contemporary ethical and decision-making issues facing leaders; emphasis on examining and analyzing ethical issues for sound leadership solutions.

**LEAD 395. CONTEMPORARY LEADERSHIP ISSUES. (3)** *Prerequisite: LEAD 200 or instructor's permission.* Analysis of contemporary issues from a leadership perspective.

**LEAD 400. PRACTICUM IN LEADERSHIP. (1-6)** *Prerequisite: Completion of all other courses approved for the Certificate in Leadership Studies or concurrent with the last course needed for fulfillment of the certificate. Students must submit a written proposal for approval by the Leadership Studies Committee.* Application of leadership skills in directing an activity in business, campus, public sector, non-profit, or other related situation. Repeatable up to a maximum total of six hours. (Grading: Pass/Fail)

**LEAD 475. LEADERSHIP STUDIES SPECIAL TOPICS. (3)** *Prerequisite: LEAD 200 or instructor's permission.* Applications of leadership theories and methodologies in selected fields, including the sciences, engineering, urban planning, the arts, public health, education and business, and for study abroad programs.

### LME – LIBRARY MEDIA EDUCATION SCHOOL OF TEACHER EDUCATION

**LME 318. CHILDREN'S LITERATURE. (3)** *Prerequisites: First three English courses or instructor approval.* An introduction to picture books, traditional literature, poetry, fiction, biography, informational books, and the development of literature programs in the elementary and middle school.

**LME 407. LITERATURE FOR YOUNG ADULTS. (3)** Selection and evaluation of materials, reading guidance, and programming for young people, adolescence through young adult.

**LME 409. SELECTED TOPICS. (1-3)** *Prerequisite: Permission of supervising faculty member.* Problematic study of a selected topic under the supervision of a faculty member. A formal research paper or annotated bibliography is required.

**LME 410. STORYTELLING. (3)** Storytelling literature, story selection, and sources. Practice in oral communication.

**LME 411. CREATIVE MEDIA EXPERIENCES FOR CHILDREN. (3)** Methods and procedures for developing creativity in children. The design and evaluation of materials and activities in a variety of media formats for school and library settings. Includes program development.

**LME 445. INTRODUCTION TO EDUCATIONAL TECHNOLOGY. (3)** Instruction and laboratory experiences in the basic theory and application of educational technology to the design, production, evaluation, and utilization of various communication media formats.

**LME 448. TECHNOLOGY APPLICATIONS IN EDUCATION. (3)** Uses of technology in education for instruction and instructional management. Emphasis on evaluation and utilization of appropriate software and hardware.

**LME 475. WORKSHOP. (1-3)** Workshop classes of variable content focused on library media practice and integration of educational technology.

### LTCY – LITERACY SCHOOL OF TEACHER EDUCATION

**LTCY 199. READING POWER. (3)** Emphasis on development of high-level reading skills, and strategic approaches to deep comprehension and analysis of academic texts. Required for incoming freshmen who scored 18 or 19 on the reading portion of the ACT. Must be paired with approved heavy reading content course.

**LTCY 310. EARLY READING, LANGUAGE AND LITERACY. (3)** *Prerequisites:* IECE 321, IECE 322 and IECE 323; or instructor permission. *Corequisites:* EXED 422, IECE 325, IECE 326 and IECE 493; or instructor permission. Theory and methods for creating learning environments for the development of language, emergent literacy, and reading and writing skills from infancy through kindergarten.

**LTCY 320. THE TEACHING OF READING. (3)** *Prerequisites:* EDU 250, PSY 310. An introduction to reading instruction for elementary grade children; includes an examination of reading needs, teaching methods, materials, and resources related to reading skills development. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**LTCY 420. READING IN THE PRIMARY GRADES. (3)** *Prerequisites:* LTCY 320, ELED 345 with grades of "C" or higher, admission to Teacher Education. A second course in reading designed to offer a detailed view of the principles, materials, and methods of instruction for grades P-5. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**LTCY 421. CONTENT AREA READING IN THE MIDDLE AND SECONDARY GRADES. (3)** *Prerequisites:* EDU 250, MGE 275, AGED 250, or AMS 220 with a grade of C or higher; and admission to Teacher Education. A course in reading designed to offer a detailed view of the principles, materials and methods of instruction for middle and secondary grade students. Field experiences in public schools and/or other appropriate settings away from campus are required. Students are responsible for arranging their own transportation to designated or assigned sites.

**LTCY 444. READING IN THE SECONDARY GRADES. (3)** The principles, psychology, and methodologies for teaching the general and the specialized reading skills in the secondary grades.

**MATH / MA – MATHEMATICS**  
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE (MATH)  
DEPARTMENT OF LIBERAL ARTS AND SCIENCES (MA)

(Courses numbered below 122 are not applicable toward a major or minor in mathematics.) A student who has earned credit for the listed course with a grade of "C" or better may not subsequently receive credit for the courses following in parentheses: MATH 117 (MATH 116); MATH 118 (MATH 116 and 117); MATH 119 (MATH 116 and 118); MATH 122 (MATH 116 and 118); MATH 136 (MATH 116, 117, 118, 119, and 122); MATH 137 (MATH 116, 117, 118, 119, 122, 136); MATH 310 (MATH 109); MATH 382 (MATH 109 and 183); STAT 301 (MATH 109 and 183).

**MATH 106. ACADEMIC SUPPORT FOR MATH 116E. (0)** *Corequisite:* MATH 116E. *Special Requirement:* Students who withdraw from MATH 116E must also withdraw from MATH 106. Provides supervised sessions in which students work individually or in groups to complete supplementary assignments or projects; may include assistance with text-specific online homework and graphing calculators.

**MATH 109 / MA 109C. GENERAL MATHEMATICS. (3)** Terminal course for non-science majors suggested for the student who has satisfactorily completed minimum high school mathematics requirements and needs no further work in algebra. Topics include sets, introduction to probability and statistics, geometry, and consumer mathematics. [GEN ED D-II]

**MATH 116 (116E) / MA 116C. COLLEGE ALGEBRA. (3)** *Prerequisites:* High school Algebra I and II and satisfactory score on Math Placement Exam; or DMA 096C with a grade of C or better. Student must enroll in MATH 116E if his/her DMA 096C grade was a C, or previous MATH 116 grade was D, F, or W, or Math ACT and MPE scores indicate need for enhanced version. *Corequisite for MATH 116E:* MATH 106, Academic Support for MATH 116E. *Special Requirement:* Students who withdraw from MATH 106 must also withdraw from MATH 116E. Graphing and problem solving are integrated throughout the study of polynomial, absolute value, rational, radical, exponential, and logarithmic functions. (Graphing calculator required.) [GEN ED D-II]

**MATH 117 / MA 117C. TRIGONOMETRY. (3)** *Prerequisites:* Four years of high school mathematics including Algebra I and II and geometry, and satisfactory score on Math Placement Exam; or MATH 116 with a grade of C or better. Unit circle; trigonometric functions and graphs; trigonometric identities and equations; right triangle trigonometry; laws of sines and cosines; DeMoivre's Theorem; vectors and applications of trigonometry. (Graphing calculator required.) [GEN ED D-II]

**MATH 118. COLLEGE ALGEBRA AND TRIGONOMETRY. (5)** *Prerequisites:* High school Algebra I and II and geometry, and a satisfactory score on the Math Placement Exam; or DMA 096C or MATH 096 with a grade of A. (Students who have completed DMA 096C or MATH 096 are urged to substitute MATH 116-117

for MATH 118.) Real number system, algebraic manipulations, and solutions of equations and inequalities, absolute value, exponential and logarithmic functions, trigonometry, systems of equations, complex numbers. (Graphing calculator required.) (course fee MATH 118-002) [GEN ED D-II]

**MATH 119. FUNDAMENTALS OF CALCULUS. (4)** *Prerequisites:* Four years of high school mathematics, including Algebra I and II and geometry, and satisfactory score on Math Placement Exam; or MATH 116 or MATH 118, with a grade of C or better. An introduction to calculus designed for non-science and non-technical majors. Applications are directed toward the management sciences and related areas. Not accepted for credit toward a mathematics major or minor. (Graphing calculator required.) [GEN ED D-II]

**MATH 121. COMPUTATIONAL PROBLEM SOLVING. (4)** *Prerequisite:* Enrollment in the Gatton Academy of Mathematics and Science in Kentucky. Students will tackle problems ranging from elementary to advanced, using mathematical methods, algorithmic techniques, and computational methods. This course is taught jointly by mathematics and computer science faculty; it is equivalent to CS 121.

**MATH 122. CALCULUS OF A SINGLE VARIABLE I. (3)** *Prerequisites:* Four years of high school mathematics, including Algebra II, geometry, and trigonometry, and satisfactory score on Math Placement Exam; or MATH 117 or MATH 118, with grade of C or better. Introductory analytic geometry and differential calculus. First course of a three-course sequence presenting a unified development of analytical geometry, differential and integral calculus, and series. (Graphing calculator required.) [GEN ED D-II]

**MATH 127. APPLIED GEOMETRY. (3)** *Prerequisites:* MATH 116/116E with a grade of C or better, or Math ACT and MPE scores that qualify student for MATH 117. Euclidean geometry with historical applications, including tilings, fractals, circular and spiral designs, celestial themes, special topics in linear algebra, and the origins of perspectives.

**MATH 136. CALCULUS I. (4)** *Prerequisites:* Four years of high school mathematics, including Algebra II, geometry, and trigonometry, and satisfactory score on Math Placement Exam and Math Placement Trig Exam; or MATH 117 or MATH 118, with grade of C or better. A course in one-variable calculus including topics from analytic geometry. Limits, derivatives, integration, and applications of polynomial, rational, trigonometric, and transcendental functions. Includes lecture and recitation. [GEN ED D-II]

**MATH 137. CALCULUS II. (4)** *Prerequisites:* MATH 136 with a grade of C or better. A second course in one-variable calculus including topics from analytic geometry. Methods of integration, sequences and series, polar and parametric functions. Includes lecture and recitation.

**MATH 142. CALCULUS WITH APPLICATIONS FOR LIFE SCIENCES. (5)** *Prerequisites:* Four years of high school mathematics, including Algebra I and II, geometry, and a course that includes trigonometry, and satisfactory Math ACT and math placement scores; or MATH 117 or MATH 118, with a grade of C or better. Exponential and logarithmic functions, derivatives, integration, first order differential equations, and systems of linear equations, with major emphasis on applications in life sciences. [GEN ED D-II]

**MATH 175. UNIVERSITY EXPERIENCE – MATHEMATICS. (2)** *Prerequisite:* For beginning college freshmen or transfer students with fewer than 24 semester hours of credit. Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, degree programs, campus resources and personal development. Specific degree requirements for a major in mathematics and career opportunities in mathematics are also discussed.

**MATH 183. INTRODUCTORY STATISTICS. (3)** *Prerequisite:* Eligibility for College Algebra based on MATH ACT or MPE scores, or DMA 096C with a grade of C or better. Introduction to elementary probability theory. The analysis of data by means of frequency distributions and the statistics which describe them. The binomial and normal probability distributions. Statistical inference. Emphasis is on applied real world problems. Not accepted for credit toward a mathematics major or minor. [GEN ED D-II]

**MATH 205. NUMBER SYSTEMS AND NUMBER THEORY FOR TEACHERS. (3)** *Prerequisites:* Completion of general education math course with a grade of C or better; for students in early grades (K-5), middle grades (5-9) or EXED teacher certification programs only. Development of conceptual understanding of elementary place value, operations on whole numbers and integers, number theory, basic algebra, and functions.

**MATH 206. FUNDAMENTALS OF GEOMETRY FOR TEACHERS. (3)** *Prerequisites:* Completion of general education math course and MATH 205 with grades of C or better; for students in the early grades (K-5), middle grades (5-9) or EXED teacher certification programs only. Conceptual development of fundamental concepts of geometry and measurement.



## Course Descriptions

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### MATH 211. MATHEMATICS FOR ELEMENTARY TEACHERS I. (3)

*Prerequisite:* Completion of general education math requirement with grade of C or higher. (For students in the early grades (K-5) teacher certification program or students pursuing middle grades (5-9) certification with a mathematics emphasis.) Elementary work with relations, systems of numeration, number systems, and number theory.

### MATH 212. MATHEMATICS FOR ELEMENTARY TEACHERS II. (3)

*Prerequisite:* MATH 211 with a grade of C or higher and completion of general education mathematics requirement. (For students in the early grades (K-5) teacher certification program or students pursuing middle grades (5-9) certification with a mathematics emphasis.) Construction geometry, motion geometry, nonmetric geometry, measurement including the metric system, and introductions to computers, probability, and statistics.

### MATH 237. MULTIVARIABLE CALCULUS. (4) *Prerequisite:* MATH 137 with a grade of C or better.

Topics in real-valued functions of several variables including directional derivatives, implicit functions, gradient, Taylor's Theorem, maxima, minima, and Lagrange multipliers. Differential calculus of vector-valued functions including chain rule and Inverse Function Theorem. Multiple integrals, line integrals, surface integrals, Stokes' and Green's Theorems.

### MATH 275. INTRODUCTORY TOPICS IN MATHEMATICS. (1-3) *Prerequisite:* MATH 136 and permission of instructor.

Varied topics selected to give students an early introduction to interesting mathematical problems or applications not found in the foundation sequence.

### MATH 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)

*Prerequisite:* Ogden Research Scholar, or 3.2 grade point average at the end of freshman year or OCSE faculty member recommendation. To familiarize Ogden Research Scholars and other interested students with the fundamentals of choosing a research topic, performing a bibliographical search on a subject, classification of instruments, data taking, data reduction, professional ethics and related topics. The common points of research methodology in the different scientific areas will be emphasized, with examples drawn from various disciplines. Computers will be utilized. (Course does not count toward any major or minor.) Equivalent to BIOL 295, CHEM 295, CS 295, GEOL 295, MATH 295, and PHYS 295.

### MATH 304. FUNCTIONS, APPLICATIONS AND EXPLORATIONS. (3)

*Prerequisite:* MATH 136. In-depth study of mathematical topics used in teaching pre-calculus and transition-to-calculus courses at the middle and secondary school level. Modeling with linear, exponential, and trigonometric functions; curve fitting; discrete and continuous models.

### MATH 305. INTRODUCTION TO MATHEMATICAL MODELING. (3) *Prerequisite:* MATH 137.

Theory and computer implementation of mathematical models. Deterministic, stochastic, discrete, continuous, and matrix models. Introduction to advanced topics such as linear algebra, differential and difference equations, probability, stochastic processes, and dynamical systems.

### MATH 307. INTRODUCTION TO LINEAR ALGEBRA. (3) *Prerequisites:* MATH 136 and either EE 180 or PHIL 215, all with a grade of C or better.

Systems of linear equations, matrix algebra, vector spaces, inner product spaces, linear transformations, eigenvectors, quadratic forms.

### MATH 308. RATIONAL NUMBERS AND DATA ANALYSIS FOR TEACHERS. (3)

*Prerequisite:* Completion of MATH 206 with a grade of C or better; for students in the early grades (K-5), middle grades (5-9) or EXED teacher certification programs only. Conceptual development of rational number system, including operations with and relationships among fractions, decimals, and percents; elementary probability and statistics.

### MATH 310. INTRODUCTION TO DISCRETE MATHEMATICS. (3) *Prerequisite:* MATH 137.

Introduction to discrete topics. Development of skills in abstraction and generalization. Set theory, functions and relations, mathematical induction, elementary propositional logic, quantification, truth tables, validity; counting techniques, pigeonhole principle, permutations and combinations; recurrence relations and generating functions; elementary graph theory, isomorphisms, trees.

### MATH 315. THEORY OF NUMBERS. (3) *Prerequisite:* MATH 307.

A study of the arithmetic of the integers, divisibility, prime numbers, factorization, diophantine equations, congruences, quadratic residues.

### MATH 317. INTRODUCTION TO ALGEBRAIC SYSTEMS. (3) *Prerequisites:* MATH 307 and MATH 310.

Introduction to groups, rings, polynomial rings, integral domains, and fields.

### MATH 323. GEOMETRY I. (3) *Prerequisite:* MATH 307 or permission of instructor.

Beginning with a re-examination of elementary Euclidean geometry, the course includes a study of absolute plane geometry and the parallel postulate, which leads to an axiomatic treatment of hyperbolic geometry and related topics.

### MATH 331. DIFFERENTIAL EQUATIONS. (3) *Prerequisite:* MATH 137.

(Recommended corequisite: MATH 307). Methods of solution of differential equations, existence and nature of solutions, systems of differential equations, applications, and numerical solutions.

### MATH 337. ELEMENTS OF REAL ANALYSIS. (3) *Prerequisites:* MATH 237, 307, 310 with a grade of C or higher.

Basic concepts and techniques of real analysis, including proofs by induction and contradiction, the number system, functions of real variables, sets, series and sequences, cardinality, continuity, convergence, elementary topology.

### MATH 350. ADVANCED ENGINEERING MATHEMATICS. (3) *Prerequisite:* MATH 331 or equivalent.

Special topics in Laplace transforms, linear algebra and complex analysis. Designed for engineering students.

### MATH 370. APPLIED TECHNIQUES IN MATHEMATICS. (3) *Prerequisites:* MATH 237, MATH 331 with grades of C or higher.

Matrices, systems of ordinary differential equations, complex variables, and at least one of the topics from Fourier analysis, numerical analysis, or optimization (linear programming, Lagrange multipliers).

### MATH 371. ADVANCED COMPUTATIONAL PROBLEM SOLVING. (3)

*Prerequisite:* CS 180 with a grade of C or better. *Prerequisite or corequisite:* MATH 136. *Special requirement:* Enrollment in the Gatton Academy of Mathematics and Science or Honors Program eligibility at WKU. Problem-solving tools and techniques, with an emphasis on mathematical reasoning, algorithmic techniques, and computational methods. Techniques and tools are applied to (research) areas of interest to enrolled students, in the context of a project involving program design and implementation. The course is taught jointly by mathematics and computer science faculty. Equivalent to CS 371.

### MATH 382. PROBABILITY AND STATISTICS I. (3) *Prerequisite:* MATH 310.

*Prerequisite or corequisite:* MATH 237. Axioms and laws of probability; discrete and continuous probability distributions; multivariate distributions; random variables; expectation; moment generating functions; Central Limit Theorem.

### MATH 398. SEMINAR. (1) *Prerequisite:* MATH 237.

Students will work on a topic of interest under the direction of a mathematics faculty member, who will set the requirements for the course. Mathematics majors could have the opportunity to continue this work in MATH 498. (May be repeated for up to a total of 3 hours credit.)

### MATH 403. GEOMETRY FOR ELEMENTARY AND MIDDLE SCHOOL TEACHERS. (3)

*Prerequisites:* MATH 206 with a grade of C or better or MATH 212 with a grade of C or better. (For students in the early grades (K-4) teacher certification program or students pursuing middle grades (5-8) certification with a mathematics emphasis.) Both formal and informal methods are used to explain the basic concepts of Euclidean geometry. Emphasis is given to the investigative approach, organizational skills, and problem solving.

### MATH 405. NUMERICAL ANALYSIS I (CS 405). (3) *Prerequisites:* MATH 237 or 307 or 310, and CS 180 or CS 146 or permission of instructor.

Computer arithmetic, roots of equations, polynomial approximation and interpolation, numerical differentiation and integration. Computer solutions of problems will be required.

### MATH 406. NUMERICAL ANALYSIS II. (3) *Prerequisites:* MATH 237, 307, 331, and either MATH 405 or CS 405.

The solution of linear systems by direct and iterative methods, matrix inversion, the calculation of eigenvalues and eigenvectors of matrices. Initial and boundary value problems in ordinary differential equations. Computer solution of problems will be required.

### MATH 409. HISTORY OF MATHEMATICS. (3) *Prerequisite:* Six hours of approved mathematics courses at the 300 and/or 400 level or permission of instructor.

History of mathematics from ancient times through the development of calculus, with emphasis on famous problems. Provides knowledge and appreciation useful in the classroom. This course cannot be accepted as part of the 35-hour requirement for the non-certifiable mathematics major. Term papers will be required.

### MATH 411. PROBLEM SOLVING FOR ELEMENTARY AND MIDDLE SCHOOL TEACHERS. (3)

*Prerequisites:* MATH 308 with a grade of C or better or permission of instructor. Integrates concepts developed in algebra, geometry, logic, statistics, probability, and elementary number theory. Students are encouraged to use problem-solving strategies, models, and technologies, and to create problems of their own.

### MATH 413. ALGEBRA AND TECHNOLOGY FOR MIDDLE GRADES TEACHERS. (3)

*Prerequisite:* MATH 117 or 136, with a grade of C or better. The use of graphing calculators and computer software to explore algebraic ideas including patterns, functions, equations, inequalities, linear programming, curve fitting, and practical applications of algebra and technology.

**MATH 415. ALGEBRA AND NUMBER THEORY. (3)** *Prerequisite: MATH 315 or 317.* An integrated survey of modern algebra and number theory. Topics include number systems, divisibility, congruences, groups and their application to number theory.

**MATH 417. ALGEBRAIC SYSTEMS. (3)** *Prerequisite: MATH 317.* Theory of groups.

**MATH 421. PROBLEM SOLVING FOR SECONDARY TEACHERS. (3)** *Prerequisites: MATH 307 and 310; MATH 382 and 323, or permission of instructor.* Utilizes various techniques and technology to solve mathematical problems. Integrates concepts from algebra, geometry, trigonometry, probability, statistics, number theory, discrete mathematics, linear algebra, and calculus.

**MATH 423. GEOMETRY II. (3)** *Prerequisite: MATH 323.* An axiomatic development of hyperbolic geometry based on the hyperbolic parallel postulate and the absolute geometry developed in MATH 323, including an emphasis on contrasts with Euclidean geometry.

**MATH 431. INTERMEDIATE ANALYSIS I. (3)** *Prerequisite: MATH 337.* Topics in analysis chosen from inverse and implicit function theorems, differentiation, integration, infinite series, series of functions, and elementary functional analysis.

**MATH 432. INTRODUCTION TO MEASURE THEORY. (3)** *Prerequisite: MATH 431.* Algebra of sets, axiom of choice, axioms for the real numbers, continuous functions, Borel sets, Lebesgue measure, Lebesgue integral.

**MATH 435. PARTIAL DIFFERENTIAL EQUATIONS. (3)** *Prerequisites: MATH 237, 307, and 331.* Equations of first and second order; elliptic, hyperbolic and parabolic equations; Sturm-Liouville theory; applications to equations of mathematical physics using separation of variables and Fourier series.

**MATH 439. TOPOLOGY I. (3)** *Prerequisite: MATH 317 or permission of instructor.* Introduction to topology including topics selected from: topological spaces, mappings, homeomorphisms, metric spaces, surfaces, knots, manifolds, separation properties, compactness and connectedness.

**MATH 450. COMPLEX VARIABLES. (3)** *Prerequisite: MATH 237.* Complex number plane, analytic functions of a complex variable, integration, power series, calculus of residues, conformal representation, applications of analytic function theory.

**MATH 470. INTRODUCTION TO OPERATIONS RESEARCH. (3)** *Prerequisite: MATH 237 and 307 or permission of instructor.* Principles and techniques of operations research including linear programming, integer programming, quality theory, sensitivity analysis, and dynamic programming.

**MATH 473. INTRODUCTION TO GRAPH THEORY. (3)** *Prerequisites: MATH 307 and MATH 310 with grades of C or better, or permission of the instructor.* Fundamental concepts, key ideas and tools in graph theory, with an emphasis on proof methods, algorithms, and applications. Techniques and tools are applied to practical optimization problems and other areas of mathematics and computer science. Equivalent to CS 473.

**MATH 475. SELECTED TOPICS IN MATHEMATICS. (1-3)** *Prerequisite: Permission of instructor.* A consideration of special topics to acquaint the advanced undergraduate student with significant problems and developments of current interest in mathematics. Topics may vary each semester offered.

**MATH 482. PROBABILITY AND STATISTICS II. (3)** *Prerequisites: MATH 237 and MATH 382.* Multivariate probability distributions; sampling distributions, statistical inference; point and interval estimation, properties of estimators; hypothesis testing; regression and correlation; analysis of variance; non-parametric methods.

**MATH 490. SEMINAR IN MIDDLE GRADES MATHEMATICS. (1)** *Prerequisite/Corequisite: MATH 411.* Hands-on activities emphasize connections among various areas of mathematics; communicating mathematics effectively and applications of middle school mathematics. Papers and oral presentations are required.

**MATH 497. SENIOR SEMINAR IN MATHEMATICAL ECONOMICS. (1)** *Prerequisite or corequisite: Senior standing and admitted to the major in mathematical economics.* This course is designed to integrate the ideas and techniques students have encountered in their work in mathematics and economics. Students will study research articles and/or undertake independent investigations in mathematical economics. Equivalent to ECON 497.

**MATH 498. SENIOR SEMINAR. (3)** *Prerequisites: MATH 237 and MATH 317 and senior standing, or permission of instructor.* *Recommended prerequisite: MATH 398.* Students will study articles in current mathematical journals or undertake independent investigations in mathematics. Written and oral presentations are required.

**ME – MECHANICAL ENGINEERING**  
**DEPARTMENT OF ENGINEERING**

**ME 175. UNIVERSITY EXPERIENCE – MECHANICAL ENGINEERING. (2)** *Prerequisite: For beginning college freshmen or transfer students with fewer than 24 semester hours of credit.* Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, degree programs, campus resources, and personal development, with special attention given to Mechanical Engineering. The design process is introduced through multiple projects during the laboratory sessions. (course fee)

**ME 176. MECHANICAL ENGINEERING FRESHMAN DESIGN. (1)** *Prerequisite: For transfer or change of major students who have earned at least 24 semester hours of credit or have completed a course equivalent to the basic topics of the generic WKU University Experience.* An introduction to Mechanical Engineering. The design process and basic professional tools are introduced through multiple projects. A replacement for ME 175 for transfer or change of major students. Permission of instructor only. (course fee)

**ME 180. FRESHMAN DESIGN II. (3)** *Prerequisites: ME 175 or 176, or permission of instructor, and MATH 136 with a grade of "C" or better.* A continuation of the engineering design process, with an emphasis on electromechanical design and the use of professional engineering tools. Virtual and rapid prototypes will be developed through a series of integrated projects. Basic concepts in engineering experimentation will be introduced. Requires a grade of "C" or better in MATH 136. (course fee)

**ME 200. SOPHOMORE DESIGN. (3)** *Prerequisites: ME 180 with a grade of "C" or better, EM 221.* Enhances design abilities through individual and team design projects, develops structured problem-solving techniques and written, oral and graphical communication skills.

**ME 220. ENGINEERING THERMODYNAMICS I. (3)** *Prerequisites: MATH 237, ME 200. Prerequisite or concurrent: MATH 331.* Fundamental principles of thermodynamics, first law, physical properties, ideal and real gases, second law, reversibility and irreversibility, and consequences of thermodynamic cycles.

**ME 240. MATERIALS AND METHODS OF MANUFACTURING. (3)** *Prerequisites: MATH 136 with a grade of C or better, CHEM 116 or 120. Corequisites: ME 241.* Introduction to the science of engineering materials including structures from the atomic to macroscopic scales, properties, strengthening mechanisms, phase diagrams and correlation between processing and properties. Introduction to manufacturing process selection and properties of materials.

**ME 241. MATERIALS AND METHODS OF MANUFACTURING LAB. (1)** *Prerequisites: MATH 136 with a grade of C or better; CHEM 116 or 120. Corequisite: ME 240.* Laboratory supporting ME 240. Experiments to develop understanding of materials science, engineering material properties and relationships between processing and properties. Exposure to manufacturing methods through experimentation and observation, including field trips to regional sites.

**ME 285. ELEMENTS OF INDUSTRIAL AUTOMATION. (1)** *Prerequisite: ME 180 with a "C" or better.* An introduction to PLC controls of industrial automation equipment, with emphasis on their impact on electromechanical design and safety. Elements of industrial networking will be introduced. (course fee)

**ME 300. JUNIOR DESIGN. (2)** *Prerequisites: ME 200, ME 344. Students must have satisfied the Mechanical Engineering Pre-Major requirements as shown in the iCAP system. Prerequisite or corequisite: ME 310.* Introduces the concept of design methodologies: Design for Assembly, Design for Manufacturing, etc. and applies these techniques to design projects. Written, oral, and graphical communication skills will continue to be developed, including skills in working with vendors for production of components to engineering specifications.

**ME 310. ENGINEERING INSTRUMENTATION AND EXPERIMENTATION. (3)** *Prerequisites: ME 285, EM 303. Prerequisite or corequisite: ME 347.* The use of sensors and instruments to measure the behavior of mechanical systems is explored in lectures and laboratory exercises. Application of sensors, calibration of systems, and methods of data collection and analysis are covered with an emphasis on uncertainty analysis. (course fee)

**ME 321. ENGINEERING THERMODYNAMICS II. (3)** *Prerequisites: ME 220, MATH 331.* Gas mixtures, air-water vapor mixtures. Air conditioning system design. Principles and design of energy conversion devices, power and refrigeration cycles. Principles of combustion, chemical equilibrium, one-dimensional gas dynamics. Nozzle design. Continuation of ME 220.

## Course Descriptions

**ME 325. ELEMENTS OF HEAT TRANSFER. (3)** *Prerequisite: ME 330.* Discussion of basic physical laws of heat transfer including steady-state and transient heat flow, one, two, and three dimensional heat conduction in solids, free or forced convection in fluids, radiation and phase change. Analysis of heat exchangers.

**ME 330. FLUID MECHANICS. (3)** *Prerequisite: ME 220. Prerequisite or corequisite: MATH 331.* An introduction to the physical laws governing the mechanical behavior of liquids and gasses, with applications of conservation of mass, energy and momentum equations. Topics include fluid statics, internal and external fluid flow, flow measurement, scale modeling and similitude, hydraulic machinery analysis and pipe networks.

**ME 344. MECHANICAL DESIGN. (3)** *Prerequisite: EM 303. Prerequisite or corequisite: ME 240.* Fundamentals of design with methods of approximation. Introduction to optimum design considerations. Synthesis and problems on the design of various mechanical elements.

**ME 347. MECHANICAL SYSTEMS LABORATORY. (1)** *Prerequisite: ME 241.* Prerequisite or corequisite: EM 303, MATH 331. Implementation of fundamental principles and physical laws governing the response of mechanical system components to external forces and constraints. Students will learn to plan, conduct, and report on a variety of experiments and projects to measure the performance characteristics of mechanical systems.

**ME 365. THERMAL SCIENCES FOR ELECTRICAL ENGINEERS. (3)** *Prerequisite: PHYS 265 or MATH 331 (prerequisite or concurrent).* Theoretical background and analysis methods required to predict the thermal behavior of electronic components and systems. Topics include design and analysis methods of forced and buoyancy-driven systems, as well as conduction, natural and forced convection, and radiation heat transfer. (This course is not for Mechanical Engineering majors).

**ME 366. MECHANICS FOR ELECTRICAL ENGINEERS. (3)** *Prerequisite: PHYS 255. Prerequisite or corequisite: MATH 237.* A combined course in statics and dynamics. Topics from statics include vector algebra, distributed and internal forces, trusses, frames, and beams. Topics from dynamics include kinematics/kinetics in various reference systems, work/energy, and impulse/momentum. (This course is not for civil or mechanical engineering majors.)

**ME 400. MECHANICAL ENGINEERING DESIGN. (2)** *Prerequisite: ME 300.* A formal introduction to product development methodologies and project management techniques, building upon experiences in previous design courses. Students will perform team design projects as well as complete the design specifications for their senior capstone project.

**ME 412. MECHANICAL ENGINEERING SENIOR PROJECT. (3)** *Prerequisites: ME 325, 400.* Students work in design teams to develop a robust solution to a complex system design problem. Focus will be on design-build-test of the proposed solution. Students expected to demonstrate all aspects of professional engineering practice.

**ME 416. UK-DYNAMIC SYSTEMS ELECTIVE. (3)** *Prerequisites: EM 313 and MATH 331.* Advanced special topics delivered in the program by UK faculty to acquaint the undergraduate student with significant problems and developments of current interest in the dynamic systems area of mechanical engineering. (course fee)

**ME 440. THERMAL FLUID SYSTEMS LABORATORY. (2)** *Prerequisite: ME 310 with a grade of "C" or better. Corequisite: ME 325.* Applied laboratory in modeling, prediction, and measurement of thermal-fluid systems. Emphasis on preparation of engineering reports, uncertainty analysis, and experimental design plan process. System level experiments will include fluid property measurements, pipe flow and turbomachinery characteristics, heat transfer measurements, and various thermodynamic cycles.

**ME 445. DYNAMIC SYSTEMS LABORATORY. (2)** *Prerequisite: ME 310 with a grade of "C" or better. Corequisite: ME 416.* Applied laboratory in modeling, prediction, and measurement of the response of mechanical dynamic systems, including free and forced responses. Emphasis on experimental planning and documentation of results. (course fee)

**ME 494. WKU ME SELECTED TOPICS. (2)** *Prerequisite: permission of instructor.* An advanced special topics course delivered by WKU faculty to acquaint the undergraduate student with significant problems and developments of current interest in mechanical engineering. This course and an accompanying ME 495 course will satisfy one technical elective requirement. Course is repeatable (with different topics) two times. Permission of instructor only.

**ME 495. WKU ME SELECTED TOPICS. (1)** *Prerequisite: permission of instructor.* An advanced special project course delivered by WKU faculty to allow undergraduate students the opportunity to execute a relevant project of current interest in mechanical engineering. This course accompanies a ME 494 course, and together will satisfy one technical elective requirement. Course is repeatable (with different topics) two times. Permission of instructor only.

**ME 496. WKU – ME SELECTED TOPICS (FALL). (3)** *Prerequisite/Corequisite: Permission of instructor.* Advanced special topics delivered in the fall semester by WKU faculty to acquaint the undergraduate student with significant problems and developments of current interest in mechanical engineering. Course is repeatable (with different topics) two times. Permission of instructor only.

**ME 497. WKU – ME SELECTED TOPICS (SPRING). (3)** *Prerequisite/Corequisite: Permission of instructor.* Advanced special topics delivered in the spring semester by WKU faculty to acquaint the undergraduate student with significant problems and developments of current interest in mechanical engineering. Course is repeatable (with different topics) two times. Permission of instructor only.

**ME 498. UK – ME SELECTED TOPICS (FALL). (3)** *Prerequisite/Corequisite: Permission of instructor.* Advanced special topics delivered in the fall semester by UK faculty to acquaint the undergraduate student with significant problems and developments of current interest in mechanical engineering. Course is repeatable (with different topics) two times. Permission of instructor only.

**ME 499. UK – ME SELECTED TOPICS (SPRING). (3)** *Prerequisite/Corequisite: Permission of instructor.* Advanced special topics delivered in the spring semester by UK faculty to acquaint the undergraduate student with significant problems and developments of current interest in mechanical engineering. Course is repeatable (with different topics) two times. Permission of instructor only.

### MFG – MANUFACTURING MANAGEMENT DEPARTMENT OF PROFESSIONAL STUDIES

**MFG 240C. MANUFACTURING OPERATIONS MANAGEMENT. (3)** *Prerequisite: BUS 200C.* A course designed to provide an overview background in manufacturing (product) operations management for production, supervisory and support personnel. Topics include analysis of production activities, techniques to improve production, planning, work measurement, material control, and forecasting.

**MFG 245C. MANUFACTURING QUALITY MANAGEMENT. (3)** *Prerequisite: BUS 200C.* A course designed to provide a background in manufacturing quality assurance for production, supervisory and support personnel. Topics include quality philosophies, issues related to quality control systems and statistical process control concepts and applications.

**MFG 265C. MANUFACTURING MANAGEMENT SEMINAR. (3)** *Prerequisite: MFG 240C and MFG 245C.* The course covers a variety of issues related to Manufacturing operations, management and organizational leadership. Topics are focused on the challenge of change, diversity of management methods, applications of strategies and future innovation. The course involves group learning experiences, practical application of concepts, and case study paper and presentation.

### MGE – MIDDLE GRADES EDUCATION SCHOOL OF TEACHER EDUCATION

**MGE 275. FOUNDATIONS OF MIDDLE GRADES INSTRUCTION. (3)** This course presents the philosophy, development, curriculum of middle grades education, through an emphasis on appropriate ethical behavior of teachers. Develops generic teaching skills related to effective teaching. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**MGE 385. MIDDLE GRADES TEACHING STRATEGIES. (3)** *Prerequisite: MGE 275.* Emphasizes the demonstration of generic teaching strategies and communication skills related to middle grades education and the integration of content methodologies, including classroom management practices and multicultural awareness through interdisciplinary/ cooperative planning. Field experiences in public schools and/or other appropriate settings away from campus are required. Students are responsible for arranging their own transportation to designated or assigned sites.

**MGE 475. TEACHING LANGUAGE ARTS. (3)** *Prerequisites: MGE 275, PSY 310, ENG 302 and two of the following courses 301, 401 or 410.* Develops skills, curriculum, and strategies for teaching English in middle school. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.



**MGE 477. TEACHING MIDDLE GRADES MATHEMATICS. (3)** *Prerequisites:* MGE 275, PSY 310, MATH 211 and 212. Cooperative learning, manipulatives, technology, and problem solving are modeled, discussed, and applied using methods and materials appropriate for middle school students. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**MGE 479. TEACHING SCIENCE. (3)** *Prerequisites:* MGE 275, PSY 310. Develops the skills, procedures, and strategies for teaching science in middle school. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**MGE 481. TEACHING SOCIAL STUDIES. (3)** *Prerequisites:* MGE 275, PSY 310. Develops skills, procedures, and strategies for teaching social studies in middle school. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**MGE 490. STUDENT TEACHING. (5-10)** *Prerequisites:* Admission to Teacher Education; admission to student teaching; and completion of all required courses in the major with grades of "C" or higher. *Corequisite:* EDU 489. Supervised assignment in approved school setting. Must complete a minimum of sixteen weeks in one or two placements depending on certification requirements. Students follow the academic calendar of the school district in which they are placed and are responsible for providing their own transportation to assigned site(s). (course fee)

#### MGT/MGMT – MANAGEMENT

#### DEPARTMENT OF MANAGEMENT (MGT)

#### DEPARTMENT OF PROFESSIONAL STUDIES (MGMT)

**MGT 200/ MGMT 200C. LEGAL ENVIRONMENT OF BUSINESS. (3)** *Prerequisite:* Sophomore standing. An introduction to the American public law system; use of law to achieve economic and social goals; legal responsibilities of the business manager.

**MGT 210. ORGANIZATION AND MANAGEMENT. (3)** *Prerequisite:* Sophomore standing. An introduction to organization theory and organizational behavior. The course focuses on managing people and material resources to enhance organizational productivity and effectiveness. Attention is given to the managerial functions of planning, organizing, leading and controlling.

**MGT 301. BUSINESS LAW. (3)** *Prerequisite:* Junior standing. A basic course in commercial law covering contracts, property, creditor rights, torts and other bases for liability and the Uniform Commercial Code.

**MGT 303. INTERNATIONAL BUSINESS. (3)** *Prerequisite:* MGT 210 and junior standing. Fundamentals of international business particularly in planning, organizing, and control aspects of the multinational enterprise. Roles of government, culture, foreign currency, taxes, political risk, and legal formalities for small and large firms entering new markets are emphasized.

**MGT 305. ETHICS AND CRITICAL THINKING. (3)** *Prerequisite:* MGT 200 and junior standing. This course is designed to develop skills needed for analyzing a problem or situation to arrive at a hypothesis or conclusion about it after synthesizing or integrating all available information. In critical thinking, all assumptions are open to question, divergent views are sought, and the investigation is not biased in favor of a particular solution.

**MGT 311. HUMAN RESOURCE MANAGEMENT. (3)** *Prerequisite:* Completion of MGT 210, AMS 430 or COMM 362. An introduction to major human resource management functions, including personnel selection; recruitment; training and development; performance appraisal; compensation; health and safety; labor-management relations; and employment law.

**MGT 313. DECISION MODELING. (3)** *Prerequisite:* ECON 206, CIS 243. This course deals with modeling problems that are similar to those faced by business managers. The problem is viewed as the focal point of analysis, and appropriate decision modeling tools are applied to obtain a solution. (course fee)

**MGT 314. OPERATIONS MANAGEMENT. (3)** *Prerequisite:* ECON 206 or equivalent or junior standing. The management of the direct resources required to produce goods and services. Operations objectives are cascaded through the organization and are translated into measurable terms that become part of the operating goals for production-related departments and their managers.

**MGT 316. INTERNATIONAL MANAGEMENT. (3)** *Prerequisite:* MGT 303 or by instructor's approval. A study of techniques and methods involved in managing an international business, with an emphasis on managerial issues unique to the global environment.

**MGT 333. MANAGEMENT OF NONPROFIT ORGANIZATIONS. (3)** Overview of nonprofit organizations, including budgeting, finance, marketing, communication, boards of directors, volunteers and strategic planning.

**MGT 361. BUSINESS COMMUNICATION FUNDAMENTALS. (3)** Emphasis on communication fundamentals essential for business. Electronic communications in the business environment, research tools for business, reports, presentations, resumes and correspondences.

**MGT 365. ENTREPRENEURIAL LAW. (3)** *Prerequisite:* Junior standing. This course is designed to identify legal risks and enable the entrepreneur or small business manager to manage these risks. This course is not intended as a substitute for hiring an attorney, but rather to identify legal issues of concern to a new venture or entrepreneurial firm.

**MGT 383. HUMAN RESOURCE INFORMATION SYSTEMS. (3)** *Prerequisite:* MGT 311. Components of HRIS and how one can be used to create a competitive advantage. Spreadsheet analysis will be also used to develop analytical skills.

**MGT 390. VALUE CREATION IN EMERGING MARKETS. (3)** *Prerequisite:* Junior standing. Examination of techniques for competing in emerging markets.

**MGT 400. EMPLOYMENT LAW. (3)** *Prerequisite:* MGT 200 or permission of instructor. An overview of the myriad of laws affecting personnel decisions. Discussions will focus on the implications of employment-at-will, equal employment opportunity, ERISA, FLSA, IRCA, NLRB, OSHA, workers' compensation, and other regulatory development.

**MGT 410. SENIOR SEMINAR-MANAGEMENT. (3)** *Prerequisites:* Senior standing and permission of instructor. A special topics course covering subjects of current interest in management. (Can be repeated for a total of 6-9 hours).

**MGT 411. EFFECTIVE STAFFING PRACTICES. (3)** *Prerequisite:* MGT 311 or PSY 370. Explores the development and utilization of employee assessment methods. Specifically covers fair recruitment, hiring, and performance appraisal practices including application processes, interviews, assessment centers, and employee testing.

**MGT 414. COMPENSATION ADMINISTRATION. (3)** *Prerequisite:* MGT 311. An investigation of the concepts and practices affecting compensation decisions in organizations, with emphasis on job analysis and evaluation, external competitiveness, employee motivation, legal requirements, and benefit administration.

**MGT 416. MANAGEMENT OF LABOR RELATIONS. (3)** *Prerequisite:* MGT 311. Legal and social context of the labor-management relationship in union and non-union environments; formation, structure and functioning of labor unions; union elections; collective bargaining; contract administration; dispute settlement; impasse resolution; and union avoidance.

**MGT 417. ORGANIZATIONAL BEHAVIOR. (3)** *Prerequisite:* MGT 210. An advanced course designed to develop an understanding of managing behavior in organizations.

**MGT 419. MANAGEMENT OF ORGANIZATIONAL CONFLICT. (3)** *Prerequisite:* Junior standing. Designed to develop skills needed to manage interpersonal, intragroup, and intergroup conflict in organizations.

**MGT 473. TRAINING IN BUSINESS AND INDUSTRY. (3)** *Prerequisites:* MGT 311 or PSY 370 or permission of the instructor. An introduction to theories, research and methods of training needs analysis, program design, implementation, and evaluation.

**MGT 490. PRACTICUM IN MANAGEMENT. (3)** *Prerequisites:* Junior standing; 2.5 cumulative GPA; MGT 210 and 6 additional hours of Management courses; Permission of the Management Chair and the instructor. Internships, independent studies, and special projects of interest to students and faculty in the Management area. These may include individual research projects, meaningful internships in profit or not-for-profit organizations with duties relating to Management, or other special projects approved by the Management Chair and the Management faculty. (Grading: Pass/Fail)

**MGT 495. STRATEGIC HUMAN RESOURCES MANAGEMENT. (3)** *Prerequisites:* MGT 311, 305. Case studies to evaluate the role human resources management plays in an organization. Discussions will center around how talent can be used to support an organization's strategic advantage and create a competitive advantage.

**MGT 498. STRATEGY AND POLICY. (3)** *Prerequisites:* Senior standing and ACCT 201, CIS 243, FIN 330, MGT 210, MGT 314, MKT 220. The development and application of contemporary competitive strategies at mid and upper managerial levels. Capstone course uses cases and/or simulation to integrate materials from prerequisite courses. (course fee)

## Course Descriptions

**MGT 499. SENIOR ASSESSMENT IN MANAGEMENT. (1)** *Prerequisites: Senior standing.* Special Information: The course may be taught on a bi-term basis. The course will be graded on a pass/fail basis and will be required of all Management majors in their last semester. Preparation for and administration of the senior assessment exam. Discussion of educational and career opportunities beyond the baccalaureate degree. (Grading: Pass/Fail)

### MIL – MILITARY SCIENCE DEPARTMENT OF MILITARY SCIENCE AND LEADERSHIP

#### BASIC COURSE (MIL I AND MIL II)

**MIL 101. MILITARY MOUNTAINEERING AND LEADERSHIP. (2)** Introduction to military mountaineering operations and leadership. Fundamentals of basic rappelling, belaying, rope bridges and application of leadership in practical exercises. Field trips to off-campus locations may be required, and transportation will be provided. (course fee) [GEN ED F]

**MIL 102. DEVELOPMENTAL SKILLS. (2)** Continues the student's education in military and "life skills" lessons in the areas of problem solving, critical thinking, leadership theory, basic first aid, survival skills and group interaction.

**MIL 201. BASIC LEADERSHIP. (3)** *Prerequisites: MIL 101 and 102 or PMS permission.* Prepares the cadet to become an effective small unit leader. Topics include leadership doctrine, ethics, communications, first aid and land navigation.

**MIL 202. TEAM BUILDING AND MILITARY DOCTRINE. (3)** *Prerequisites: MIL 101, 102, and 201, or PMS permission.* Introduces cadets to military doctrine and tactics, values and ethics, and officership. The latter includes extensive work in military oral and written communication skills as well as the role of the United States Army from Vietnam to present day.

**MIL 209. INTRODUCTION TO MILITARY LIFE. (1)** *Prerequisite: Permission of the PMS.* A basic introduction to the Army standards and procedures for students who plan to attend the United States Army ROTC Leader's Training Course, Ft. Knox, KY.

**MIL 210. MILITARY SCIENCE PRACTICUM (LEADER'S TRAINING COURSE). (6)** Introduces military science in a comprehensive course designed to be taken in lieu of MIL 101, 102, 201, and 202 for students who were unable to take these courses. The course is held at Fort Knox, KY during the summer and emphasizes practical application of military skills and development of leadership abilities. Students are provided room and board and paid approximately \$800 for attending. Prior to enrollment in this course, the student must meet academic and physical standards established by the Army. To receive credit for this course, at no cost, see the Professor of Military Science.

#### ADVANCED COURSE (MIL III AND MIL IV)

**MIL 301. MILITARY LEADERSHIP AND MANAGEMENT. (3)** *Prerequisite: Permission of the PMS.* Principles and techniques of leadership and management including leadership techniques and training, introduction to basic military weapons, and ethics and professionalism.

**MIL 302. MILITARY LEADERSHIP AND ADVANCED TACTICAL SKILLS. (4)** *Prerequisite: Permission of the PMS.* Principles and fundamentals of small unit tactics and communications with emphasis on leadership techniques for controlling and employment of small units. Includes communication, map reading, and troop leading procedures.

**MIL 401. PROFESSIONAL LEADERSHIP SKILLS. (3)** *Prerequisite: Permission of the PMS.* Focuses on military leadership and management principles. Discussion and practical exercises in leadership principles and traits, organizational leadership, counseling techniques, management, delegation and control.

**MIL 402. ROLE OF THE ARMY OFFICER. (4)** *Prerequisite: Permission of the PMS.* The final course of the advanced program focuses on Army combat operations, logistics, administration, readiness, military justice, leadership, management, and preparation for commissioning.

**MIL 410. MILITARY SCIENCE PRACTICUM (LEADERSHIP DEVELOPMENT AND ASSESSMENT COURSE). (6)** *Prerequisite: Permission of the PMS.* Develops leadership through an intensive five-week summer field course of rotating leader/command roles, practical experience in problem analysis, decision making and troop leading while providing in-depth coverage of technical subjects. Successful completion of this course is required. Prior to enrollment, the student must meet the physical and academic standards established by the Army.

**MIL 490. MILITARY LEADERSHIP SEMINAR. (1)** *Prerequisite: Permission of the PMS.* Practical applications of military leadership skills, military bearing and physical fitness are stressed. Course is designed to assist students in the transition to Army officer status and continue their physical conditioning. Field experience on military installations is required (transportation provided).

### MKT – MARKETING DEPARTMENT OF MARKETING AND SALES

**MKT 220. BASIC MARKETING CONCEPTS. (3)** *Prerequisite: Sophomore standing.* Introduction to the functional activities of marketing including product, distribution, promotion, and pricing decisions; the importance of a consumer orientation; and strategic marketing planning including implementation and control of marketing activities.

**MKT 321. CONSUMER BEHAVIOR. (3)** *Prerequisite: MKT 220.* A study of the basic concepts underlying consumer behavior; sociological and psychological phenomena which influence consumer behavior, and research approaches which allow marketers to predict and influence behavior.

**MKT 322. INTEGRATED MARKETING COMMUNICATIONS. (3)** *Prerequisite: MKT 220.* This course examines the various components of the promotional mix both individually and collectively as an integrated whole. It addresses the need to target appropriate marketing communications to the publics of interest to both profit and nonprofit organizations.

**MKT 323. SERVICES MARKETING. (3)** *Prerequisite: MKT 220.* A study of marketing as it applies to intangible products such as professional, health care, financial, and hospitality services. The course pays special attention to the interaction between marketing management and the simultaneous creation, delivery and consumption of services.

**MKT 324. INTERNATIONAL MARKETING. (3)** *Prerequisite: MKT 220.* Theory, concepts and practices of firms engaged in various levels of international marketing. Emphasis placed on developing marketing strategies consistent with environmental opportunities.

**MKT 325. PERSONAL SELLING. (3)** *Prerequisite: Junior Standing.* A study of the fundamentals of personal selling with emphasis on self-confidence, control in the sales interaction, and appropriate sales techniques. Extensive opportunity is provided in the classroom for experience with various personal selling situations.

**MKT 326. SPORTS MARKETING. (3)** *Prerequisite: MKT 220.* This course explores one of the most important links between the sports industry and business. Emphasis is placed on the marketing of sports, such as the marketing performed by teams, leagues and sporting goods manufacturers, and marketing through sports, which entails using sports images and personalities to market nonsports products and services.

**MKT 327. RETAILING MANAGEMENT AND STRATEGY. (3)** *Prerequisite: MKT 220.* A study of the principles that underlie the successful operation of a company distributing goods and services directly to the ultimate consumer. This will include, but is not limited to, strategic decisions such as site selection, franchising, and target markets, as well as management decisions such as pricing, personnel selection, merchandising, and atmospheric design.

**MKT 328. MARKETING ON THE WORLD WIDE WEB. (3)** *Prerequisite: MKT 220, CS 145 or CIS 141.* An entrepreneurial-oriented, applied course designed to thoroughly familiarize the student with the primary aspects of marketing on the World Wide Web.

**MKT 329. BUSINESS-TO-BUSINESS MARKETING. (3)** *Prerequisite: MKT 220.* Provide information specifically targeted at the field of business-to-business marketing. Explore the challenges, the environmental influences and managerial issues related to the marketing mix decision variables, product, place, promotion, and price, in a business-to-business setting.

**MKT 331. SOCIAL MEDIA MARKETING. (3)** *Prerequisite: MKT 220.* The use of online social channels (social networking sites, websites, search engines, forums/message boards, video-sharing sites) to achieve marketing goals, including targeting markets on the social web, increasing effectiveness of communication in social web channels, and measuring the success of social media marketing campaigns.

**MKT 420. SENIOR SEMINAR-MARKETING. (3)** *Prerequisite: MKT 220.* A special topics course covering subjects of current interest in marketing.

**MKT 421. MARKETING RESEARCH. (3)** *Prerequisites: MKT 220, ECON 306 (or comparable statistics course).* Analysis of the interaction between marketing information needs and decision-making; planning, executing and reporting results of research using modern research methods and applied statistics are stressed.

**MKT 422. MARKETING MANAGEMENT. (3)** *Prerequisites: MKT 220 + 6 additional hours of marketing.* An in-depth study of marketing activities from a managerial perspective. Areas of study include strategic planning; segmentation and target marketing; consumer behavior; marketing research; product, promotion, pricing, and distribution decisions; services marketing; and international marketing. A lecture course.

**MKT 423. PURCHASING AND PHYSICAL DISTRIBUTION. (3)** *Prerequisite: MKT 220.* A primarily non-quantitative study of the Place function of the marketing mix. An examination of the process of moving a product, idea or service from the producer to the ultimate purchaser. Topics of interest may include channel structures, transportation modes, channel power, conflict, negotiation strategies, and the various tools used by channel members.

**MKT 424. SALES FORCE MANAGEMENT. (3)** *Prerequisite: MKT 220.* Principles and concepts of sales planning and control, organizing sales departments, developing territories, recruiting, selecting, training, motivating and compensating salespeople, and controlling sales operations.

**MKT 425. ADVANCED PERSONAL SELLING STRATEGIES. (3)** *Prerequisites: MKT 220, MKT 325.* An advanced, experiential course designed to thoroughly familiarize the student with all of the primary aspects of personal selling, from a hands-on, applied approach.

**MKT 427. ENTREPRENEURIAL MARKETING. (3)** *Prerequisite: MKT 220.* A study of key marketing strategies relevant to new ventures that prepares students to work in an entrepreneurial firm or to run their own business.

**MKT 490. PRACTICUM IN MARKETING. (1-3)** *Prerequisites: 2.75 cumulative GPA, MKT 220, 6 additional hours of marketing, and permission of instructor.* Internships, independent studies, and special projects of interest to the students and faculty in the marketing area. These may include individual research projects approved by the department head and supervised by a member of the marketing faculty, meaningful internships with area businesses with duties relating to marketing, or other special projects which may be approved by the department head and the marketing faculty. (Grading: Pass/Fail)

**MKT 491. MARKETING STUDY ABROAD. (1-6)** *Prerequisite: Permission of instructor.* Experiential learning taking place in a foreign culture in a foreign country. Provides students with the opportunity to experience and learn about marketing in a foreign nation. This may be part of a formalized program (i.e. KIIS or CCSA) or it could be a customized program developed within the department for an individual or small group of students. This course may be repeated one time, but no more than 6 total hours can be included in the major or minor portion of the degree program.

**MKT 499. SENIOR ASSESSMENT. (1)** *Prerequisite: Senior standing.* Preparation for and administration of the senior assessment exam. Discussion of educational and career opportunities beyond the baccalaureate degree.

**MLNG – MODERN LANGUAGES**  
DEPARTMENT OF MODERN LANGUAGES

**MLNG 410. SECOND LANGUAGE ACQUISITION. (3)** *Prerequisite: Enrollment in P-12 certification program in French, German or Spanish and successful completion of at least two upper-division courses in the teaching language.* Introduction to principal theories of the acquisition of a second or foreign language. Explores how language learning styles and strategies relate to language acquisition and implications for the classroom.

**MLNG 420. MULTIMEDIA TECHNOLOGIES IN TEACHING FOREIGN LANGUAGES. (3)** *Prerequisites: Enrollment in K-12 certification program in French, German or Spanish or permission of instructor and successful completion of at least one upper-division course in the language of teaching certification.* Pedagogical and hands-on training for pre-teachers. Student will enroll in a course section for French, German or Spanish.

**MLNG 474. TEACHING FOREIGN LANGUAGE. (3)** *Prerequisites: EDU 250, EXED 330, SEC 351, SEC 453, PSY 310. Corequisite: SEC 453. This course is equivalent to SEC 474.* Develops skills, procedures, and strategies for teaching foreign language in middle and secondary schools. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**MLNG 480. TOPICS IN MODERN LANGUAGE CULTURES AND PEDAGOGY. (1-3)** *Prerequisites: Enrollment in K-12 certification program in French, German, or Spanish; successful completion of at least two upper-division courses in the teaching language; senior standing or permission of instructor.* Topics in Modern Language cultures and societies, including literature and the arts, social issues, and current events, as well as aspects of language pedagogy. Students enroll in course section for the language of their major. May be repeated with different topics for a maximum of 6 hours of credit.

**MUS / MUSI – Music**  
DEPARTMENT OF MUSIC (MUS)  
DEPARTMENT OF LIBERAL ARTS AND SCIENCES (MUSI)

**MUSIC THEORY AND COMPOSITION**

**MUS 090. FUNDAMENTALS OF MUSIC THEORY. (3)** *Prerequisite: Restricted to majors in music.* Prepares students for entry into MUS 100 in the theory sequence for music majors. Includes fundamental music notation, literacy, aural skills, clefs, notes, rhythms, keys, scales and intervals.

**MUS 100. THEORY I. (3)** *Prerequisite: Theory Placement Exam.* Music fundamentals. Triads, intervals, keys, scales, cadences, notation, triads, four-part writing, analysis, non-chord tones, harmonization, rhythmic notation, sight singing, melodic/harmonic dictation, keyboard harmony.

**MUS 101. THEORY II. (3)** *Prerequisite: MUS 100.* Seventh chords, inversions, chromatic harmony, suspensions, pedal point, writing for piano, four-part writing, harmonic analysis, rhythmic reading, sign signing, melodic/harmonic dictation, keyboard harmony.

**MUS 175. UNIVERSITY EXPERIENCE-MUSIC MAJORS. (2)** *Prerequisite: For beginning college freshmen music or transfer students with fewer than 24 semester hours of credit.* Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, degree programs, campus resources and personal development. Special attention is given to music degree requirements, careers and resources in the field.

**MUS 200. THEORY III. (3)** *Prerequisite: MUS 101.* Modulation, ninth/eleventh/thirteenth chords, jazz harmonization, modal, non-tertian, and twentieth century harmony, serialism, four-part writing, harmonic analysis, rhythm, sight-singing, melodic/harmonic dictation, keyboard harmony.

**MUS 201. THEORY IV. (3)** *Prerequisite: MUS 200.* Form and analysis Baroque/Classical/Romantic eras, piano sonatina composition, harmonic analysis, improvisation, rhythmic reading, sight-singing, melodic/harmonic dictation, keyboard harmony.

**MUS 203. MUSIC TECHNOLOGY. (2)** This course provides the student with a comprehensive overview of the current technological advances present in the music workplace.

**MUS 206. COMPOSITION. (2)** *Prerequisite: Consent of the instructor.* Study and assignment will depend on previous background and creative ability.

**MUS 405. CHORAL ARRANGING. (3)** *Prerequisite: MUS 201.* A study of the principles of part-writing, arranging, and editing for various voice groupings. Practical application for school and church choruses will be stressed.

**MUS 407. ORCHESTRATION AND BAND ARRANGING. (3)** *Prerequisite: MUS 201.* A study of the characteristics and techniques of the various orchestra and band instruments. Practical experience in scoring for full symphonic orchestra and symphonic band. Performances given for selected orchestrations and arrangements.

**MUSIC EDUCATION**

**MUS 214. STRING TECHNIQUES. (1)** This course is required for music education majors. It is designed to acquaint students with the techniques and pedagogy of the violin, viola, cello and string bass.

**MUS 215. BRASS TECHNIQUES. (1)** This course is required for music education majors. It is designed to acquaint students with the techniques and pedagogy of the high and low brass families.

**MUS 307. MUSIC THEATRE WORKSHOP. (2)** *Prerequisites: THEA 101, DANC 213 and MUS 162, or permission of instructor.* Intensive, interdisciplinary scenework focusing on the special demands of analyzing, rehearsing and performing scenes drawn from music theatre literature. Repeatable three times for up to 8 hours for credit. Equivalent to THEA 307.

**MUS 311. MUSIC FOR THE ELEMENTARY TEACHER. (3)** A required course for primary elementary education majors which centers on music as an aid in instruction of standard curricular subjects and techniques which classroom teachers can utilize to further develop the natural rote and rhythmic abilities of the young child.

**MUS 312. TEACHING MUSIC IN THE PRIMARY GRADES. (3)** A required course for music education majors which consists of developmentally appropriate techniques, methods and materials for pre-primary and primary learners. Observation and field experiences will be required.



## Course Descriptions

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**MUS 314. COMPREHENSIVE ARTS EDUCATION FOR THE ELEMENTARY TEACHER. (3)** *Prerequisites: ART 310, MUS 311.* Required for the elementary education major. Appropriate concepts, methods, and materials for weaving the arts (dance, drama, music, visual art) through the elementary school curriculum. Field experience in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**MUS 315. CLARINET AND SAXOPHONE TECHNIQUES. (1)** This course is required for instrumental music education majors. It is designed to acquaint students with the techniques and pedagogy of the clarinet and saxophone.

**MUS 316. FLUTE AND DOUBLE REED TECHNIQUES. (1)** This course is required for instrumental music education majors. It is designed to acquaint students with the techniques and pedagogy of the flute, oboe, English horn and bassoon.

**MUS 317. CONDUCTING I. (2)** Patterns for each meter, uses of the left hand, cueing posture, attacks, releases, terminology and score study.

**MUS 318. CONDUCTING II. (2)** *Prerequisite: MUS 317.* Continuation of Conducting I. Score reading.

**MUS 319. PERCUSSION TECHNIQUES. (1)** This course is required for music education majors. It is designed to acquaint students with the techniques and pedagogy of the percussion instruments.

**MUS 412. TEACHING MUSIC IN THE MIDDLE SCHOOL. (3)** *Prerequisite: MUS 312.* A required course for music education majors which consists of developmentally appropriate techniques, methods and materials for learners ages 9-14. Observation and field experiences will be required.

**MUS 414. CHORAL MATERIALS. (2)** *Prerequisite: MUS 415.* A practical survey for the school and church musician of choral music from the fifteenth- through the twentieth-centuries. Course emphasis will be on the evolution of secular and sacred choral forms and performance practices, which would be accessible for most choral programs.

**MUS 415. CHORAL METHODS. (3)** A study of the techniques of choral development from rehearsal procedures to performance. Emphasis is also placed on cultivating choral musicianship, program planning and organizational development.

**MUS 416. INSTRUMENTAL METHODS. (3)** Organization of the school instrumental program; problems, materials and program planning for the school orchestra and band from the elementary grades through high school; special problems in connection with concerts, festivals, materials and administrative details.

**MUS 417. MARCHING BAND TECHNIQUES. (2)** Systems, mechanics, and charting the modern exhibition marching band, including visual support units.

### MUSIC HISTORY AND LITERATURE

**MUS 119. JAZZ APPRECIATION. (3)** Survey of jazz from its origins to the present. Includes jazz elements, swing, bop, cool jazz, avant-garde and free jazz, among other topics. [GEN ED E]

**MUS 120 / MUSI 120C. MUSIC APPRECIATION. (3)** A survey of music from early to modern times. The course aims to widen the musical horizons and receptivities of the general college student and to make him a more discriminating listener. Concerts, radio, and television programs are assigned for special listening. No formal background is required. [GEN ED B-II]

**MUS 277. INTRODUCTION TO WORLD MUSIC. (3)** A cultural and functional analysis of traditional musical genres developed in world areas: Africa, America, Asia, Europe and Oceania. Emphasis will be placed on musical styles, performance practices, aesthetics, and instruments. Equivalent to ANTH 277/ FLK 277. [GEN ED E]

**MUS 326. THE HISTORY OF MUSIC I. (3)** Music history from early times through Monteverdi. Assigned readings and recorded illustrations. [GEN ED B-II]

**MUS 327. THE HISTORY OF MUSIC II. (3)** Music history from Monteverdi through Wagner. Assigned readings and recorded illustrations. [GEN ED B-II]

**MUS 328. THE HISTORY OF MUSIC III. (3)** Music history from Wagner through the present day. Assigned readings and recorded illustrations.

**MUS 430. MUSIC LITERATURE. (3)** A variable topic course which may be taken more than once for credit. Typical term sub-titles are as follows: American Music, Band Literature, Baroque Period, Chamber Music, Keyboard Literature, Medieval and Renaissance Music, Opera Literature, Symphonic Literature, Vocal Literature, World Music.

### PEDAGOGY

**MUS 310. PEDAGOGY FOR PERFORMANCE MAJORS. (3)** A required course for Bachelor of Music (B.M.) in performance majors, which centers on teaching in their particular area of performance and provides a knowledge of basic repertoire.

**MUS 338. DIR INDEPENDENT STUDY. (1-3)** *Prerequisite: Permission of instructor.* Supervised, guided individual study in a specialty area.

### ENSEMBLES

**MUS 340. CHORAL UNION. (1)** Subtitles: Choral Society, Women's Chorus, Men's Chorus

**MUS 341. CHORALE. (1)**

**MUS 344. UNIVERSITY ORCHESTRA. (1)**

**MUS 345. CHAMBER SINGERS. (1)**

**MUS 347. MARCHING BAND. (1)** [GEN ED F]

**MUS 348. BAND. (1)** Subtitles: Symphonic Band, University Band, Concert Band, Wind Ensemble

**MUS 371. JAZZ ENSEMBLE. (1)**

### PERFORMANCE CLASSES

**MUS 155. PERFORMANCE ATTENDANCE. (0)** *Prerequisite: Restricted to majors in music.* Attendance at 14 recitals and/or concerts within one semester from a music department approved list. (Grading: Pass/Fail)

**MUS 349. CHAMBER MUSIC. (1)** This course presupposes that the student has attained considerable ability as a performer. Preparation and performance of all types of chamber music literature. Credits will be given for as many semesters as taken. (Subtitles: Accompanying, Brass Ensemble, Early Music Ensemble, Double Reed Ensemble, Guitar Ensemble, Jazz Improvisation Ensemble, Percussion Ensemble, String Ensemble, Vocal Ensemble, Woodwind Ensemble, Orchestra Strings)

**MUS 374. OPERA THEATRE. (1)**

### APPLIED MUSIC SKILLS CLASSES

**MUS 152. DICTION I FOR VOICE MAJORS. (1)** Review of the use of the International Phonetic Alphabet and its application to the German and Italian languages using appropriate vocal literature.

**MUS 160. GROUP PIANO I. (1)** A course for beginners. Scales and keyboard skills.

**MUS 161. GROUP PIANO II. (1)** A course for beginners. Scales and keyboard skills.

**MUS 162. GROUP VOICE. (1)** An exploratory course in the theory and practice of the development of the singing voice. Natural breathing, correct tone production.

**MUS 166. GROUP GUITAR I. (1)** Group instruction in the basic elements of guitar and the rudiments of music to include time signatures, notation, transposition, bar chord techniques, scales and triads.

**MUS 252. DICTION II FOR VOICE MAJORS. (1)** Review of the use of the International Phonetic Alphabet and its application to the French and English languages using appropriate vocal literature.

**MUS 260. GROUP PIANO III. (1)** Keyboard skills to include cadential progressions in all keys, harmonization of diatonic melodies in simple keys, playing by ear, sight reading, scales and development of techniques adequate to a moderately easy Clementi *Sonatina*.

**MUS 261. GROUP PIANO IV. (1)** Keyboard skills to include cadential progressions in all keys, harmonization of diatonic melodies in simple keys, playing by ear, sight reading, scales and development of techniques adequate to a moderately easy Clementi *Sonatina*.

**MUS 266. GROUP GUITAR II. (1)** *Prerequisite: Group Guitar I or consent of instructor.* Continuation of development of basic skills learned in Group Guitar I, with addition of more difficult repertoire. Classical, Pop, Jazz, and Folk Styles included.

### APPLIED MUSIC INSTRUCTION

**MUS 150, 350. APPLIED MUSIC SECONDARY. (1)** (course fee)

**MUS 153, 353. APPLIED MUSIC PRINCIPAL. (2)** *Corequisite: MUS 155.* (course fee)

**MUS 357, 457. APPLIED MUSIC MAJOR. (3)** *Corequisite: MUS 155.* (course fee)

**NURS / NUR – NURSING  
SCHOOL OF NURSING**
**ASSOCIATE DEGREE NURSING COURSES**

**NUR 104. CALCULATIONS FOR NURSING. (1)** *Prerequisite: Admission to the nursing program.* An introduction to medication dosage calculations, symbols, abbreviations, unit dosing, and system equivalent conversion operations. Emphasis of course is on medication problems involving metric and household measurement conversions necessary for medication administration in nursing.

**NUR 105. FUNDAMENTALS OF NURSING. (6.5)** *Prerequisite: Admission to the nursing program. Corequisite: NUR 106. Prerequisites/Corequisites: NURS 104, PSY 199/ PSYC 199C, BIOL 131/ BIO 131C.* Introduces fundamental nursing concepts and principles utilizing basic human needs, developmental theory, nursing process, and therapeutic nursing interventions to promote and maintain health for selected populations. (course fee)

**NUR 106. FUNDAMENTALS OF NURSING CLINICAL. (1.5)** *Prerequisite: Admission to the nursing program. Prerequisites or corequisites: NUR 104, 105, PSY 199/ PSYC 199C, BIOL 131/ BIO 131C.* Application of fundamental nursing concepts, principles, and skills. (course fee)

**NUR 150. LPN TO RN TRANSITION. (1)** *Prerequisite: Admission to the nursing program. Prerequisites or corequisites: PSY/ PSYC 199, BIOL/ BIO 131C.* Concepts required to transition from the licensed practical nurse to the registered nurse role.

**NUR 155. MEDICAL-SURGICAL NURSING I. (5.5)** *Prerequisites: NUR 104, 105, 106. Corequisites: NUR 156, 165, 166. Prerequisite or corequisite: CHEM 109/ CHM 109C.* Medical-surgical concepts utilizing basic human needs, developmental theory, nursing process and therapeutic nursing interventions to promote and maintain health for selected populations. (course fee)

**NUR 156. MEDICAL-SURGICAL NURSING I CLINICAL. (3.5)** *Prerequisites: NUR 104, 105, 106. Corequisite: NUR 155, 165, 166. Prerequisite or corequisite: CHEM 109/ CHM 109C.* Application of medical-surgical nursing concepts, principles, and skills. (course fee)

**NUR 165. MENTAL HEALTH NURSING. (2.5)** *Prerequisites: NUR 104, 105, 106. Corequisites: NUR 155, 156, 166. Prerequisite or Corequisite: CHEM 109/ CHM 109C.* Includes mental health nursing concepts utilizing basic human needs, developmental theory, nursing process and therapeutic nursing interventions to promote and maintain health for selected populations.

**NUR 166. MENTAL HEALTH NURSING CLINICAL (1.5)** *Prerequisites: NUR 104, 105, 106. Corequisites: NUR 155, 156, 165. Prerequisite or corequisite: CHEM 109/ CHM 109C.* Application of mental health nursing concepts, principles, and skills.

**NUR 208. MEDICAL-SURGICAL NURSING II. (5)** *Prerequisites: NUR 155, 156, 165, 166. Corequisites: NUR 209, 215, 216. Prerequisites or Corequisites: ENG 100/ ENGL 100C, BIOL 207/ BIO 207C.* Expansion on previous medical-surgical nursing concepts utilizing basic human needs, developmental theory, nursing process and therapeutic nursing interventions to promote and maintain health for selected population. (course fee)

**NUR 209. MEDICAL-SURGICAL NURSING II CLINICAL. (3)** *Prerequisites: NUR 155, 156, 165, 166. Corequisites: NUR 208, 215, 216. Prerequisites or Corequisites: ENG 100/ ENGL 100C, BIOL 207/ BIO 207C.* Application of medical-surgical nursing concepts, principles and skills.

**NUR 215. MATERNAL-NEWBORN NURSING. (2.5)** *Prerequisites: NUR 155, 156, 165, 166. Corequisites: NUR 208, 209, 216. Prerequisites or Corequisites: ENG 100/ ENGL 100C, BIOL 207/ BIO 207C.* Includes maternal-newborn nursing concepts utilizing basic human needs, developmental theory, nursing process and therapeutic nursing interventions to promote and maintain health for selected populations.

**NUR 216. MATERNAL-NEWBORN NURSING CLINICAL. (1.5)** *Prerequisites: NUR 155, 156, 165, 166. Corequisites: NUR 208, 209, 215. Prerequisites or Corequisites: ENG 100/ ENGL 100C, BIOL 207/ BIO 207C.* Application of maternal-newborn nursing concepts, principles and skills.

**NUR 245. PEDIATRIC NURSING. (2)** *Prerequisites: NUR 208, 209, 215, 216. Corequisite: NUR 255. Prerequisite or Corequisite: SOCL 100/ SOC 100C, BIOL 208/ BIO 208C, Category B elective.* Includes pediatric nursing concepts utilizing basic human needs, developmental theory, nursing process and therapeutic nursing interventions to promote and maintain health for selected populations.

**NUR 255. MEDICAL SURGICAL NURSING III. (3)** *Prerequisites: NUR 208, 209, 215, 216. Corequisites: NUR 254, 256, 257. Prerequisites or corequisites: SOCL 100/ SOC 100C, BIOL 208/ BIO 208C, Category B elective.* Expansion on previous medical-surgical nursing concepts utilizing basic human needs, developmental theory, nursing process and therapeutic nursing interventions to promote and maintain health for selected populations. (course fee)

**NUR 256. NURSING SEMINAR. (1)** *Prerequisites: NUR 208, 209, 215, 216. Corequisites: NUR 255, 257. Prerequisites or Corequisites: SOCL 100/ SOC 100C, BIOL 208/ BIO 208C, Category B elective.* Exploration of issues and policies related to the profession of nursing including preparation for licensure.

**NUR 257. NURSING PRACTICUM. (3)** *Prerequisites: NUR 208, 209, 215, 216. Corequisites: NUR 255, 256. Prerequisite or Corequisite: SOCL 100/ SOC 100C, BIOL 208/ BIO 208C, Category B elective.* Capstone experience applying previous knowledge and skills to provide nursing care to multiple clients.

**PRELICENSURE BACHELOR OF SCIENCE IN NURSING COURSES**

**NURS 102. INTRODUCTION TO PROFESSIONAL NURSING. (3)** *Prerequisite: 586P, ENG 100, or equivalent, or permission of instructor.* This course is required for students seeking entry into the nursing major. Course includes nursing history, trends, professional roles and responsibilities, educational options, and licensure issues. Taking this course does not guarantee admission into nursing or count towards hours in the nursing major.

**NURS 317. SPECIAL TOPICS/ INDEPENDENT STUDY. (1-3)** A variable credit course which permits the student to select an explore a topic of interest in nursing. With faculty guidance, the student is expected to design, implement and evaluate objectives based on identified learning needs.

**NURS 324. PATHOPHYSIOLOGY FOR NURSING. (3)** *Prerequisite: Admission to the nursing program. Corequisites: NURS 333, 334, 335, 336, 337.* Explores the basic pathophysiology of selected disease processes that alter the health of individuals across the lifespan. Focuses on nursing assessment and identification of presenting signs and symptoms and manifestations of the selected disease processes. (course fee)

**NURS 329. CONCEPTS IN PHARMACOLOGY I. (2)** *Prerequisites: NURS 324, 333, 334, 335, 336, and 337; or permission of the instructor. Corequisites: NURS 338, 341, 342, 343, 344.* Explores introductory principles of pharmacology, drug prototypes used to treat alternations in health for medical, surgical, and mental health patients, and the nurse's role in administering drugs to patients. (course fee)

**NURS 333. FUNDAMENTALS OF NURSING. (3)** *Prerequisite: Admission to the nursing program. Corequisites: NURS 324, 334, 335, 336, 337.* Fundamental concepts and principles that form the basis for professional nursing practice.

**NURS 334. CLINICAL: FUNDAMENTALS OF NURSING. (2)** *Prerequisite: Admission to the nursing program. Corequisites: NURS 324, 333, 335, 336, 337.* Application of fundamental concepts and principles, performance of psychomotor skills and techniques that form the basis for professional nursing practice. Students are responsible for arranging their own transportation to assigned sites. (Grading: Pass/Fail) (course fee)

**NURS 335. HEALTH ASSESSMENT. (3)** *Prerequisite: Admission to the nursing program. Corequisites: NURS 324, 333, 334, 336, 337.* Development of physical assessment skills to determine health status of clients across the life span.

**NURS 336. HEALTH ASSESSMENT LAB. (1)** *Prerequisite: Admission to the nursing program. Corequisites: NURS 324, 333, 334, 335, 337.* Application of assessment concepts, principles, psychomotor skills, and techniques that form the basis for professional nursing assessment. (Grading: Pass/Fail) (course fee)

**NURS 337. HEALTH PROMOTION. (3)** *Prerequisite: Admission to the nursing program or permission of the instructor. Corequisites: NURS 324, 333, 334, 335, 336.* Explores professional nursing interventions and standards to promote the health of individuals, families, and groups from diverse cultures across the lifespan. Includes discussion of health policies at the local, regional, and national levels.

**NURS 338. TRANSCULTURAL NURSING: CONCEPTS AND APPLICATION. (2)** *Prerequisites: NURS 324, 333, 334, 335, 336, and 337; or permission of instructor. Corequisites: NURS 329, 341, 342, 343, 344.* Explores the meaning of health and illness for diverse populations. Identifies barriers and facilitators to access and utilization of healthcare. Focuses on the provision of culturally-sensitive nursing care to diverse populations across the lifespan.

**NURS 341. MEDICAL SURGICAL NURSING I. (3)** *Prerequisites: NURS 324, 333, 334, 335, 336, and 337; or permission of instructor. Corequisites: NURS 338, 329, 342, 343, 344.* Basic medical surgical nursing concepts to provide holistic care to diverse individuals and families experiences alternations in health.

## Course Descriptions

**NURS 342. CLINICAL: MEDICAL SURGICAL NURSING I. (3)** *Prerequisites:* NURS 324, 333, 334, 335, 336, and 337; or permission of instructor. *Corequisites:* NURS 338, 329, 341, 343, 344. Application of basic medical surgical nursing concepts to provide holistic care to diverse individuals and families experiencing alteration in health. Students are responsible for arranging own transportation to assigned sites. (Grading: Pass/Fail) (course fee)

**NURS 343. MENTAL HEALTH NURSING. (2)** *Prerequisites:* NURS 324, 333, 334, 335, 336, and 337; or permission of instructor. *Corequisites:* NURS 338, 329, 341, 342, 344. Integration of mental health concepts to provide care to clients experiencing alterations in mental health.

**NURS 344. CLINICAL: MENTAL HEALTH NURSING. (1)** *Prerequisites:* NURS 324, 333, 334, 335, 336, and 337; or permission of instructor. *Corequisites:* NURS 338, 328, 341, 342, 343. Application of mental health concepts to provide nursing care to clients experiencing alterations in mental health. Students are responsible for arranging own transportation to assigned sites. (Grading: Pass/Fail)

**NURS 403. NURSING LEADERSHIP, MANAGEMENT, AND PROFESSIONAL ISSUES. (4)** *Prerequisites:* NURS 413, 429, 432, 433, 444, 445; or permission of instructor. *Corequisites:* NURS 421, 422, 448, 449, and nursing elective. Examines issues and trends in professional nursing practice, and theoretical foundations of nursing management and leadership. (course fee)

**NURS 413. NURSING RESEARCH AND EVIDENCE-BASED PRACTICE. (3)** *Prerequisites:* NURS 329, 338, 341, 342, 343, 344. *Corequisites:* NURS 429, 432, 433, 444, 445. A study of the research process. Emphasis on critical analysis of selected research in nursing, evaluation of research findings, and application to evidence-based nursing practice.

**NURS 421. HIGH ACUITY NURSING. (3)** *Prerequisites:* NURS 429, 413, 432, 433, 444, 445 or permission of instructor. *Corequisites:* NURS 403, 422, 448, 449. Application and integration of advanced medical-surgical nursing concepts to provide holistic nursing care to the high-acuity patient.

**NURS 422. SENIOR PRACTICUM. (3)** *Prerequisites:* NURS 429, 413, 432, 433, 444, 445 or permission of instructor. *Corequisites:* NURS 403, 421, 448, 449. Application and integration of previous knowledge and skills in the delivery of nursing care to multiple clients in a variety of health care settings. (course fee) (Grading: Pass/Fail)

**NURS 429. CONCEPTS IN PHARMACOLOGY II. (2)** *Prerequisites:* NURS 338, 329, 341, 342, 343, and 344; or permission of instructor. *Corequisites:* NURS 413, 432, 433, 444, 445. Explores advanced principles of pharmacology, drug prototypes used to treat alterations in health for women, infants, children and high acuity patients, and the nurse's role in administering drugs to patients. (course fee)

**NURS 432. MEDICAL-SURGICAL NURSING II. (3)** *Prerequisites:* NURS 338, 329, 341, 342, 343, and 344; or permission of instructor. *Corequisites:* NURS 413, 429, 433, 444, 445. Advanced medical-surgical nursing concepts to provide holistic care to diverse individuals, families, and groups experiencing complex alterations in health.

**NURS 433. CLINICAL: MEDICAL-SURGICAL NURSING II. (2)** *Prerequisites:* NURS 338, 329, 341, 342, 343, and 344; or permission of instructor. *Corequisites:* NURS 413, 429, 432, 444, 445. Application and integration of advanced medical-surgical nursing concepts to provide holistic care to diverse individuals, families, and groups experiencing complex alterations in health. Students are responsible for arranging own transportation to assigned sites. (Grading: Pass/Fail) (course fee)

**NURS 444. MATERNAL CHILD NURSING. (4)** *Prerequisites:* NURS 338, 329, 341, 342, 343, and 344; or permission of instructor. *Corequisites:* NURS 413, 429, 432, 433, 445. Application and integration of nursing concepts to provide holistic care to diverse women, infants, and children experiencing alterations in health.

**NURS 445. CLINICAL: MATERNAL CHILD NURSING. (2)** *Prerequisites:* NURS 338, 329, 341, 342, 343, and 344; or permission of instructor. *Corequisites:* NURS 413, 429, 432, 433, 444. Application and integration of concepts in acute care and community settings to provide holistic nursing care to diverse women, infants, and children experiencing alterations in health. Students are responsible for arranging own transportation to assigned sites. (Grading: Pass/Fail) (course fee)

**NURS 448. COMMUNITY HEALTH NURSING. (3)** *Prerequisites:* NURS 413, 429, 432, 433, 444, and 445; or permission of instructor. *Corequisites:* NURS 403, 421, 422, 449, and nursing elective. Theories and concepts from nursing and public health address multidimensional health needs of diverse populations: role of the nurse in healthcare of society.

**NURS 449. CLINICAL: COMMUNITY HEALTH NURSING. (3)** *Prerequisites:* NURS 413, 429, 432, 433, 444, and 445; or permission of instructor. *Corequisites:* NURS 403, 421, 422, 448, and nursing elective. Application of public health concepts to address multidimensional health needs of diverse populations: role of the nurse in healthcare of society. Students are responsible for arranging own transportation to assigned sites. (Grading: Pass/Fail) (course fee)

### NURSING GENERAL ELECTIVE COURSES

**NURS 317. SPECIAL TOPICS/INDEPENDENT STUDY. (1-3)** A variable credit course which permits the student to select an explore a topic of interest in nursing. With faculty guidance, the student is expected to design, implement and evaluate objectives based on identified learning needs.

**NURS 320. WOMEN'S HEALTH ISSUES THROUGH THE LIFE CYCLE. (3)** *Prerequisite:* Junior standing in nursing or permission of instructor. Through lecture and class discussion, health issues confronting women throughout the life cycle will be explored.

**NURS 369. COOPERATIVE EDUCATION IN NURSING. (3)** *Prerequisite:* Completion of all Junior level nursing courses. Practical experience in a supervised work situation with a cooperating hospital, governmental or other health care agency, emphasizing application of knowledge and skills in selected areas of nursing.

**NURS 411. SCHOOL HEALTH NURSING. (3)** *Prerequisite:* Admission to school nurse certification program or permission of instructor. Provides theory and skills to assist the registered nurse in fulfilling the multiple roles of the school nurse in K-12 settings. Clinical practicum may be completed in school of employment.

**NURS 415. COMPLEMENTARY HEALTH CARE. (3)** *Prerequisite:* Permission of instructor. Selected holistic modes of healing will be explored. Focus will be on history, research findings, theoretical basis and legal implications.

**NURS 424. CARDIAC AND HEMODYNAMIC MONITORING. (3)** *Prerequisite:* Completion of all junior level nursing courses. Interpretation of basic cardiac dysrhythmias and hemodynamic waveforms, application of principles and techniques, and recommended interventions.

**NURS 450. RURAL HEALTH & SAFETY. (3)** Students will explore a variety of health and safety issues unique to rural populations. The interdisciplinary team concept will be used throughout the course to foster collaboration that facilitates sharing of the expertise of students and faculty.

**NURS 451. GERONTOLOGICAL NURSING. (3)** *Prerequisites:* *Prelicensure:* Admission to the prelicensure program and NURS 300. *Post-RN:* Admission to the Post-RN program or with permission of instructor. This course focuses on the nursing care of older adults. Emphasis is placed on theories of aging, pathophysiological processes, and normal variations specific to the aging population, and use of the nursing process to enhance positive outcomes.

**NURS 492. FAITH COMMUNITY NURSING. (3)** *Prerequisite:* Senior level BSN or permission of instructor. Builds upon practice of community health nursing to develop skills needed to provide nursing care for individuals and groups in faith communities.

### RN to BSN COURSES (Registered Nurse to Bachelor of Science)

**NURS 300. CONCEPTS OF DISEASE PROCESSES. (3)** *Corequisites:* NURS 309, 313, 325 (*prelicensure student*). Explores the pathophysiological processes influencing the health of clients across the lifespan and the role of the nurse in assessing manifestations of these processes.

**NURS 309. HEALTH ASSESSMENT ACROSS THE LIFESPAN. (3)** *Corequisites:* NURS 300, 313, 325 (*prelicensure student*). Development of physical assessment skills to determine health status of clients across the life span.

**NURS 315. CONCEPTS IN PHARMACOLOGY. (3)** *Prerequisite or corequisite:* ENG 300. *Prerequisites:* NURS 300, 309, 313 and 325 (*prelicensure student*). *Corequisites:* NURS 316, 321, and 328 (*prelicensure student*). Explores principles of pharmacology, drug prototypes used to treat alterations in body systems and the nurse's role in administering drugs to clients across the lifespan.

**NURS 321. TRANSCULTURAL NURSING. (2)** *Prerequisites:* NURS 300, 309, 313, and 325 (*prelicensure student*). *Corequisites:* NURS 315, 316, and 328 (*prelicensure student*). *Prerequisite or corequisite:* NURS 323 (*PostRN student*). Focus on developing knowledge of theoretically based transcultural nursing with application of nursing care to clients across the lifespan.

**NURS 323. CONCEPTS OF PROFESSIONAL NURSING. (2)** *Prerequisite or corequisite:* Admission to Post-RN nursing program. Emphasizes concepts that enhance development of advanced professional practice and continued professional development. (course fee)



**NURS 340. TEACHING AND HEALTH PROMOTION IN NURSING PRACTICE. (3)** *Prerequisite: NURS 323 (May be corequisite).* Emphasizes client educational assessment, special learning needs, theories, models and nurses' role of teaching and health promotion for clients across the life span.

**NURS 400. NURSING LEADERSHIP AND MANAGEMENT. (3)** *Prerequisites: Junior level nursing courses (prelicensure student). Corequisites: NURS 412, 414, and 428 (prelicensure student). Prerequisite or co-requisite: NURS 323 (Post RN Student).* Theoretical foundations of nursing management and leadership emphasizing human resource management, decision making, and motivational skills.

**NURS 405. NURSING INFORMATICS. (2)** *Prerequisite or Corequisite: NURS 323 (Post-RN student).* Explores the science and art of nursing informatics in the health care system in the context of nursing practice, education, systems administration and research.

**NURS 408. PROFESSIONAL ISSUES. (3)** *Prerequisites: NURS 400, 412, 414, and 428 (prelicensure student). Corequisites: NURS 421, 422, and 426 (prelicensure student). PostRN student: This course must be taken in the final semester of the program.* Explores issues and trends in current professional practice: social, legal, economic, historical, theoretical, political, ethical and research components. (course fee)

**NURS 412. INTRODUCTION TO NURSING RESEARCH. (3)** *Prerequisites: Junior level nursing courses (prelicensure student). Corequisites: NURS 400, 414, and 428 (prelicensure student). Prerequisite or Corequisite: NURS 323 (Post-RN student).* A study of the research process with emphasis on critical analysis and evaluation of selected research findings for application to professional nursing practice.

**NURS 430. CONCEPTS OF PUBLIC HEALTH NURSING. (4)** *Prerequisite or corequisite: NURS 323.* Theories and concepts from public health nursing address the multidimensional health needs of diverse populations and role of the nurse in community-based settings.

**NURS 431. APPLICATION OF PUBLIC HEALTH NURSING. (2)** *Prerequisite or corequisite: NURS 323. Corequisite: NURS 430.* Application of nursing process with diverse populations across the lifespan in community-based settings. Focus on health promotion. (Grading: Pass/Fail)

#### OST – OFFICE SYSTEMS TECHNOLOGIES DEPARTMENT OF PROFESSIONAL STUDIES

**OST 101C. KEYBOARDING. (3)** Keyboarding mastery, drill for speed and accuracy, letters and other business forms. (course fee)

**OST 217C. TRANSCRIPTION. (3)** Designed to develop skills required for transferring machine transcription to printed form.

**OST 220C. WORD PROCESSING. (3)** Application of word and information processing and communication skills to produce quality business and professional documents. (course fee)

**OST 221C. DESKTOP PUBLISHING. (3)** Use of software to develop page layout, graphics, charts, illustrations and artwork for creation of newsletters and other professional publications. (course fee)

**OST 222C. ADVANCED DESKTOP PUBLISHING. (3)** *Prerequisite: OST 221C or instructor's permission.* Includes technical, design, and typography concepts used in Advanced Desktop Publishing.

**OST 225C. RECORDS AND INFORMATION MANAGEMENT. (3)** Management of records from creation to disposal. Included are the principles and procedures of organizing, operating and controlling traditional, automated, and special records.

**OST 255C. OFFICE ADMINISTRATION. (3)** Includes work relationships, leadership roles, team membership, problem solving skills, and the use of technology.

**OST 271C. OFFICE INTERNSHIP. (3)** A parallel of cooperative work assignment in a business office supervised and coordinated by a faculty member. Periodic seminars and outside assignments related to the job are required. (Grading: Pass/Fail)

#### PE / PED – PHYSICAL EDUCATION DEPARTMENT OF KINESIOLOGY, RECREATION AND SPORT (PE) DEPARTMENT OF LIBERAL ARTS AND SCIENCES (PED)

**PE 103 / PED 103C. THIRD ACTIVITY COURSE. (1)** Activity may be selected from aquatics, archery, bowling, dance, golf, karate, racquetball, soccer, volleyball, weight training, aerobic dance, jogging, firearms, self-defense for women, water aerobics and white water kayaking. Students are responsible for transportation to and from off-campus experiences.

**PE 104 / PED 104C. FOURTH ACTIVITY COURSE. (1)** Activity may be selected from aquatics, archery, bowling, dance, golf, karate, racquetball, soccer, volleyball, weight training, aerobic dance, jogging, firearms, self-defense for women, water aerobics and white water kayaking. Students are responsible for transportation to and from off-campus experiences.

#### GENERAL EDUCATION PHYSICAL EDUCATION

**PE 100 / PED 100C. FUNDAMENTALS OF PHYSICAL ACTIVITY. (3)** A study of the basic knowledge, understandings, and values of physical activity. Laboratory experiences are required. [GEN ED F]

**PE 101 / PED 101C. FIRST ACTIVITY COURSE. (1)** Activity may be selected from aquatics, bowling, dance, golf, karate, racquetball, soccer, volleyball, weight training, aerobic dance, jogging, firearms, self-defense for women, water aerobics and white water kayaking. Students are responsible for transportation to and from off-campus experiences. (course fee in selected sessions) [GEN ED F]

**PE 102 / PED 102C SECOND ACTIVITY COURSE. (1)** Activity may be selected from aquatics, bowling, dance, golf, karate, racquetball, soccer, volleyball, weight training, aerobic dance, jogging, firearms, self-defense for women, water aerobics and white water kayaking. Students are responsible for transportation to and from off-campus experiences. [GEN ED F]

#### PROFESSIONAL PHYSICAL EDUCATION

**PE 111. MOVEMENT THEMES AND CONCEPTS I. (2)** An introduction to the basic principles of body management skills. Students are required to perform movement patterns which have gymnastic qualities. The students will conduct peer-teachings. For Physical Education majors only.

**PE 121. DANCE AND RHYTHMICAL ACTIVITIES. (2)** A study of a variety of dance forms and rhythmical activities suitable for teaching in public schools. Students will learn appropriate teaching techniques and procedures.

**PE 122. FOUNDATIONS OF KINESIOLOGY. (3)** An introductory study of the historical, philosophical, and scientific foundations of physical education. Equivalent to EXS 122.

**PE 123. MOVEMENT THEMES AND CONCEPTS II. (2)** *Prerequisite: PE 111 or permission of instructor.* Designed to provide majors with biomechanical knowledge and skill acquisition in the area of human movement to include the fundamental skills of catching, throwing, kicking, and striking. The students will conduct peer-teachings. For Physical Education majors only.

**PE 211. NET/WALL AND TARGET SPORTS. (2)** Pedagogical principles related to teaching the skills, tactics, and strategies of 'Net/wall' and 'Target' game forms.

**PE 212. STRIKING/ FIELDING AND INVASION SPORTS. (2)** Pedagogical principles of teaching 'invasion' and 'striking/fielding' game forms.

**PE 220. SKILL PROGRESSION AND ASSESSMENT. (2)** Focuses on appropriate learning progressions for instructional tasks to achieve a necessary link between learning outcomes using a skills approach and a tactical awareness of games approach.

**PE 221. HEALTH RELATED FITNESS I – AEROBICS. (2)** The importance of aerobic exercise for health is presented through a variety of aerobic fitness activities. Students are required to perform and lead activities. For Physical Education majors only.

**PE 222. FITNESS/ WELLNESS APPLICATIONS. (2)** Designed to help physical education majors build a foundation of current knowledge and practice in health related fitness and wellness for application in the education setting.

**PE 223. INTRODUCTION TO TEACHING PHYSICAL EDUCATION. (3)** Designed to provide majors with the abilities to define, describe, and demonstrate a range of skills to support multiple accreditation standards teaching physical education in a variety of settings.

**PE 250. CONDUCT OF INTRAMURAL SPORTS. (2)** A critical analysis of intramural sports programs from the standpoint of objectives, age level, and contribution to the general welfare of the participating students. Problems of policy and administration of programs on the elementary, secondary, and college levels are studied.

**PE 300. OUTDOOR EDUCATIONAL ACTIVITIES. (2)** *Prerequisite: Junior standing.* A study of outdoor activity skills and techniques for assessing community outdoor education resources.

**PE 310. KINESIOLOGY. (3)** Study of the anatomical, mechanical, and neuromuscular bases of human movement.

**PE 311. EXERCISE PHYSIOLOGY. (3)** A study of the acute and chronic effects of exercise on the body's physiological function.

## Course Descriptions

**PE 312. BASIC ATHLETIC TRAINING. (3)** *Prerequisites: PE 311 or EXS 311 and junior status.* A study of the basic principles of athletic training including prevention, evaluation, care, and rehabilitation of athletic injuries. Equivalent to EXS 312.

**PE 313. MOTOR DEVELOPMENT. (3)** A study of the development of human motor performance.

**PE 314. PHYSICAL EDUCATION CURRICULUM. (3)** A comprehensive study of guidelines for curriculum development within domain of physical education based on developmentally appropriate content and movement framework.

**PE 319. ADAPTED PHYSICAL EDUCATION. (3)** Provides knowledge and skills for assessing, interpreting, programming and instructing children and adults with disabilities/special needs in a wide range of physical education programs.

**PE 320. METHODS IN EARLY AND MIDDLE CHILDHOOD PHYSICAL EDUCATION. (2)** Designed to provide an in-depth study of the pedagogical knowledge and techniques required for an effective elementary physical education program.

**PE 321. PHYSICAL EDUCATION CURRICULUM (K-6). (3)** A study of guidelines for curriculum development in elementary physical education. The content of this course is based on developmentally appropriate content and the movement framework.

**PE 322. FIELD EXPERIENCE IN PHYSICAL EDUCATION I. (2)** Field-based experiences in Early and Middle Childhood emphasizing the abilities to understand, recognize, analyze, and demonstrate a range of teaching skills.

**PE 323. ADAPTIVE PHYSICAL EDUCATION (K-6). (1)** The course provides knowledge and skills for assessing, interpreting, programming, and instructing students with disabilities in K-6 physical education programs.

**PE 324. EVALUATION IN PHYSICAL EDUCATION. (3)** *Prerequisite: Second semester junior standing in the physical education major.* A study of measurements utilized to evaluate the cognitive, affective, and psychomotor dimensions of school-age physical education students. Also, information for exercise specialists. Equivalent to EXS 324.

**PE 333. COACHING OF VOLLEYBALL. (2)** *Prerequisite: Junior standing.* A study of the fundamentals of coaching offensive and defensive volleyball.

**PE 340. FOOTBALL COACHING. (3)** *Prerequisite: Junior standing.* Fundamentals of offensive and defensive play, psychology of coaching, schedule making, rules and problems in training, and conditioning in football.

**PE 341. BASKETBALL COACHING. (3)** *Prerequisite: Junior standing.* Fundamentals of offensive and defensive play, psychology of coaching, schedule making, rules and problems in training, and conditioning in basketball.

**PE 342. TRACK AND FIELD COACHING. (3)** *Prerequisite: Junior standing.* Fundamentals of coaching, schedule making, rules and problems in training, and conditioning in track and field.

**PE 343. BASEBALL COACHING. (3)** *Prerequisite: Junior standing.* Fundamentals of coaching, schedule making, rules and problems in training, and conditioning in baseball.

**PE 354. PHYSICAL EDUCATION FOR ELEMENTARY SCHOOLS. (3)** Designed especially for classroom teachers emphasizing materials and techniques for the physical education program for elementary schools.

**PE 355. LABORATORY PROCEDURES IN PHYSICAL EDUCATION ATHLETICS. (2)** A study of specific problems in the administration of physical education, recreation, athletics and exercise science.

**PE 413. ADAPTIVE PHYSICAL EDUCATION (7-12) (1)** The course provides knowledge and skills for assessing, interpreting, programming, and instructing students with disabilities in 7-12 physical education programs.

**PE 414. PHYSICAL EDUCATION CURRICULUM (7-12) (3)** Principles and practices of secondary physical education curriculum models to include an in-depth understanding and implementation of KERA academic expectations. Field experience is required.

**PE 415. FIELD EXPERIENCE IN PHYSICAL EDUCATION II. (2)** Field-based experiences in adolescent/young adulthood emphasizing the abilities to understand, recognize, analyze, and demonstrate a range of teaching skills.

**PE 416. SPECIAL TOPICS IN PHYSICAL EDUCATION. (1-3)** *Prerequisite: Permission of instructor.* An in-depth examination of a topic of current interest and relevance to physical education practitioners. Repeatable with a maximum of 4 hours.

**PE 420. ADAPTIVE PHYSICAL EDUCATION. (3)** *Prerequisite: Junior standing.* Study and field experience in the adaption of the principles and practices of physical education programs for the teaching of handicapped children.

**PE 456. ADVANCED STUDIES IN PHYSICAL EDUCATION AND ATHLETICS. (3)** Specific and detailed analysis of practical problem areas in physical education and athletics.

**PE 483. TECHNOLOGY APPLICATIONS IN PHYSICAL EDUCATION. (1)** Technology-related applications in physical education.

**PE 493. PRACTICUM IN COACHING. (1, 2 OR 3)** Supervised experience as an assistant coach in an interscholastic athletic program.

### PERF – PERFORMING ARTS DEPARTMENT OF THEATRE AND DANCE

**PERF 105. TAIJI. (1)** Fundamentals of Yang-style Taijiquan, a traditional Chinese martial art designed to strengthen and coordinate physical motion with breath control and mental/emotional focus. Repeatable three times for credit. (Grading: Pass/Fail) [GEN ED F]

**PERF 110. MAT PILATES. (2)** A study of Pilates-based, mat exercises. Holistic exercises use specific breath support and provide physical/mental conditioning that change muscle tone, balance, flexibility and overall fitness and well-being. Repeatable two times for credit. [GEN ED F]

**PERF 120. REHEARSAL AND PRODUCTION I. (1)** An experiential learning course designed to provide practical experience in all areas of theatrical production under actual production conditions.

**PERF 121. REHEARSAL AND PRODUCTION II. (1)** Continuation of PERF 120.

**PERF 175. UNIVERSITY EXPERIENCE: PERFORMING ARTS. (2)** Designed to develop academic skills and library research skills to foster personal development and to provide information about campus resources, thus empowering students to have a successful transition to the higher education experience.

**PERF 205. VOICE AND MOVEMENT FOR THE STAGE. (2)** A developmental studio course designed to help students enhance the quality, strength, balance, flexibility, and control of their natural vocal/kinesesthetic abilities. Repeatable once for credit.

**PERF 220. REHEARSAL AND PRODUCTION III. (1)** Continuation of PERF 121.

**PERF 221. REHEARSAL AND PRODUCTION IV. (1)** Continuation of PERF 220.

**PERF 261. PERFORMING ARTS PRACTICUM I. (1)** *Prerequisite: Permission of instructor.* Individualized, mentored practical project course in drama, theatre or dance. Repeatable 3 times for a total of 4 credit hours.

**PERF 300. TOPICS IN CONTEMPORARY PERFORMANCE STUDIES. (3)** Topics-based course focusing on a particular area of contemporary performance theory and practice. May be repeated twice for a total of 9 credit hours.

**PERF 320. REHEARSAL AND PRODUCTION V. (1)** Continuation of PERF 221.

**PERF 321. REHEARSAL AND PRODUCTION VI. (1)** Continuation of PERF 320.

**PERF 361. PERFORMING ARTS PRACTICUM II. (2)** *Prerequisite: Permission of instructor.* Individualized, mentored practical project course in drama, theatre or dance. Repeatable 3 times for a total of 8 credit hours.

**PERF 369. PROFESSIONAL WORK/ CAREER EXPERIENCE IN THEATRE. (3)** Practical out-of-classroom experience in a supervised work situation with a cooperating business, industry, social or governmental agency. Can be repeated one time with departmental approval.

**PERF 400. ADVANCED PERFORMING ARTS STUDIO. (3)** *Prerequisite: Theatre and Dance majors only, at least junior standing and permission of instructor.* A team mentored applied performing arts studio offering advanced Theatre and Dance majors an opportunity to work together in small, collaborative teams on the conceptualization and production of fully realized performing arts events. Repeatable twice for a total of 9 credit hours.

**PERF 420. REHEARSAL AND PRODUCTION VII. (1)** Continuation of PERF 321.

**PERF 421. REHEARSAL AND PRODUCTION VIII. (1)** Continuation of PERF 420.

**PERF 445. RESEARCH IN THEATRE AND DANCE. (3)** Directed Research in Theatre and Dance. Offered as an independent study course with a theatre/ dance faculty advisor.

**PERF 450. PERFORMING ARTS CAREER SEMINAR. (2)** *Prerequisites: Department of Theatre and Dance majors with senior standing, or permission of instructor.* Prepares senior theatre and dance department majors to successfully engage the application/audition process for graduate and/or entry-level career positions in the field of performing arts.

**PERF 423. PERFORMING ARTS MANAGEMENT. (3)** A basic study of the principles of management applied to the fields of theatre operation, production preparation and performance that will affect the direction and growth of the theatre.

**PERF 451. CAREER SEMINAR WORKSHOP. (1)** *Corequisite: PERF 450.* A discipline specific workshop designed to accompany PERF 450: Performing Arts Career Seminar.

**PERF 461. PERFORMING ARTS PRACTICUM III. (3)** *Prerequisite: Permission of instructor.* Individualized, mentored practical project course in drama, theatre or dance. Repeatable 3 times for a total of 12 credit hours.

**PH- PUBLIC HEALTH**  
**DEPARTMENT OF PUBLIC HEALTH**

**PH 100. PERSONAL HEALTH. (3)** Examines behaviors and environmental conditions that enhance or hinder an individual's health status. In addition to exploring social and environmental factors, students are encouraged to think critically about behavioral choices that impact one's health. Students assess their individual behavior in the light of current scientific knowledge concerning mental health; drugs, alcohol and tobacco; health care; selection of health products; prevention of disease; nutrition; exercise, and stress management. Equivalent to HED 100C. [GEN ED F]

**PH 111. HUMAN NUTRITION. (3)** Includes a study of the nutrients essential to human life and well-being, their function in metabolism, their sources in food as it is consumed and the application of this information to the significant relationship between food habits and health. [GEN ED F]

**PH 165. DRUG ABUSE. (3)** This course offers an opportunity for the student to explore the drug culture, and both healthful and harmful use of drugs. The scope will include marijuana, hallucinogens, narcotics, stimulants, depressants and volatile chemicals. Pharmacological, psychological and sociological aspects of drug abuse will be studied through individual research, group discussion, lectures and field trips when practical. Equivalent to HED 165C. [GEN ED F]

**PH 261. FOUNDATIONS OF HEALTH EDUCATION. (3)** *Prerequisite: PH 100.* An introduction to the discipline of health education, including history, theoretical basis, comparison and contrast of work settings, ethics, professional organizations, and perspectives on the future.

**PH 280. INTRODUCTION TO ENVIRONMENTAL SCIENCE. (3)** An introductory course devoted to the study of environmental issues. A general understanding of application of science to solution of contemporary environmental problems. Equivalent to BIOL 280, CHEM 280, ENV 280, and GEOG 280. [GEN ED D-I]

**PH 363. HEALTH SERVICES FOR SCHOOL PERSONNEL. (3)** *Prerequisites: PH 261 and BIOL 131.* Investigation of school and community health services, including: screening for visual, hearing, nutritional and emotional disorders; the role of school personnel in the health appraisal, referrals and follow-up techniques, recognition and control of communicable diseases, first aid and emergency care, and health screening techniques. Emphasis on coordination of school and community health services.

**PH 365. HUMAN SEXUALITY. (3)** *Prerequisites: PH 100 and junior standing.* Examines sociological, physiological, and psychological aspects of human sexuality in relation to family life, courtship, marriage, reproduction, education, and aging. Includes information on sexual assault, sexually transmitted infections (STIs), and HIV/AIDS.

**PH 381. COMMUNITY HEALTH. (3)** *Prerequisites: PH 261 or appropriate background.* Study of international, national, state and local health problems, and the governmental, voluntary and private sectors of the health care system. Emphasis is placed upon preventative strategies appropriate for contemporary public health concerns.

**PH 382. PEER HEALTH EDUCATION. (3)** *Prerequisites: Instructor permission required. Admission based upon academic background and interview.* Course focuses on health concerns specific to college students with a strong emphasis on alcohol and other drug issues, and methods of addressing these issues through peer health education.

**PH 383. BIostatISTICS IN THE HEALTH SCIENCES. (3)** *Prerequisites: MATH 109 or MATH 116 or higher.* Introduction to statistical methods, scientific structure of study design, hypothesis formation and verification and study classification. Includes descriptive statistics, data presentation, data sources, questionnaire construction, interviewing techniques and use of computer technology.

**PH 384. INTRODUCTION TO EPIDEMIOLOGY. (3)** *Prerequisite: PH 383.* Explores the distribution and determinants of health and diseases, illnesses, injuries, disability, and death in populations. Examines the application of epidemiologic procedures to the understanding of the occurrence and control of conditions such as infectious and chronic diseases, mental disorders, community and environmental health hazards, accidents, and geriatric problems.

**PH 385. ENVIRONMENTAL HEALTH. (3)** *Prerequisites: PH 384, 3 hours CHEM and 3 hours BIOL.* This course examines the environment and its relationship to health status. Areas of emphasis include food protection, air, water and land pollution, hazardous wastes, and noise and radiation hazards.

**PH 390. WELLNESS AND FITNESS ASSESSMENT. (3)** *Prerequisites: BIOL 131, FACS 111, CPR certification and junior standing.* Techniques of wellness and fitness assessment, evaluations of various populations including identification of individual health risk factors, and personal goals for cardiovascular health and fitness.

**PH 402. WORKSITE HEALTH PROMOTION. (3)** *Prerequisite: PH 390 or permission of instructor.* Provides specific concepts and skills needed in worksite health promotion using comprehensive health promotion and education techniques. Also discusses policy issues, program planning and special population interactions that are unique to the worksite setting.

**PH 443. HEALTH AND AGING. (3)** *Prerequisites: PH 261 and junior standing.* Examines the multiple factors affecting health of older adults. The course will discuss normal changes in aging and how to promote health of older adults. Students are required to have hands-on field experience. Students are responsible for their own off-campus transportation.

**PH 444. DEATH, DYING AND BEREAVEMENT. (3)** *Prerequisites: 3 hours of social or behavioral science, junior standing.* A study of the universal experience of dying and death, within societal, cultural, philosophical and spiritual contexts, designed to help people make sense of their mortality and the development of coping skills to assist with dealing with the death of loved ones.

**PH 447. HUMAN VALUES AND THE HEALTH SCIENCES. (3)** *Prerequisites: PH 261, PH 381, or appropriate background in the social behavioral, biological, or allied health sciences.* An analysis of the difficult ethical, legal, and social dilemmas confronting the health care delivery system, patients, medical practitioners and other health care professionals in contemporary American society.

**PH 450. RURAL HEALTH AND SAFETY. (3)** Students will explore a variety of health and safety issues unique to rural populations. The interdisciplinary team concept will be used throughout the course to foster collaboration that facilitates sharing of the expertise of the students and faculty. One Saturday meeting will be required for a team building activity. A fee is required for this course.

**PH 456. INDEPENDENT STUDY IN HEALTH AND SAFETY. (1-3)** *Prerequisites: Junior standing and permission of instructor.* Specific and detailed analysis of practical problem areas in health and safety. Designed specifically for independent study.

**PH 460. SCHOOL AND COMMUNITY HEALTH WORKSHOP. (3)** *Prerequisite: Permission of instructor.* Coordination of school and community health programs and personnel in seeking solutions for common health problems. May include field trips to health agencies.

**PH 461. COMPREHENSIVE SCHOOL HEALTH PROGRAM. (3)** *Prerequisite: PH 381.* Examines the instructional component of a comprehensive school health program. Discusses the role of administrators, teachers, counselors, health service personnel and policy issues in coordinating and evaluating a comprehensive school health program.

**PH 462. FOLKLORE AND MEDICINE. (3)** This course examines the role of traditional culture in shaping attitudes and behavior related to sickness, health, and healing. Institutional, alternative, and informal medical settings are discussed. Equivalent to FLK 462.

**PH 463. CONSUMER HEALTH. (3)** *Prerequisites: PH 261 and junior standing.* This course examines the benefits and/or hazards associated with health related products, services and information presently available to the consumer. The methods and techniques of health frauds are analyzed. Emphasis is placed on the development of individual criteria for the potential selection and purchase of health products and services. Field trips may be required.

**PH 464. WOMEN'S HEALTH. (3)** *Prerequisites: Junior standing and permission of instructor.* An analysis of the major health problems of contemporary women, with a special emphasis on health promotion, disease prevention, and consumer health concerns.



## Course Descriptions

### PH 465. HEALTH AND SAFETY IN THE ELEMENTARY SCHOOL. (3)

*Prerequisite:* PH 100 or a similar course. An exploration of the nature and purpose of school health and safety in the elementary school, including curriculum development, instructional content areas, appraising students health and evaluation.

**PH 466. CLINICAL HEALTH EDUCATION. (3)** *Prerequisites:* 12 semester hours health course work. A course designed to prepare health educators to function in wellness or patient education programs located in a clinical or industrial setting. May include field trips.

**PH 467. DRUG ABUSE EDUCATION. (3)** *Prerequisite:* PH 100 or equivalent. A drug abuse education and prevention course designed to provide current and documented information about abused substances. Includes study of the development, implementation and evaluation of drug prevention programs in the home, school, community and workplace.

**PH 468. SEXUALITY EDUCATION. (3)** *Prerequisites:* PH 365 or permission of instructor. A critical review of programs designed to promote sexuality education in community and school settings. Forces that impact on the adoption of various curricula and the development of new curricula are examined. Students are taught to utilize scientific and cultural considerations in preparing and adopting curricula for different populations.

**PH 469. CRITICAL ISSUES IN HEALTH AND SAFETY. (3)** *Prerequisites:* PH 261 and PH 381. Analysis of current health problems from both school and community viewpoints. The purpose of the course is to permit in-depth exploration, through research and discussion, of specific local, national and worldwide health and safety problems.

**PH 483. ADMINISTRATION OF HEALTH PROGRAMS. (3)** *Prerequisite:* PH 384. Introductory study of the basic principles, theories and practices of public health administration. Emphasis will be placed on the development and organization of health programs from voluntary and official agencies to meet the health needs of the community.

**PH 484. COMMUNITY ORGANIZATION FOR HEALTH EDUCATION. (3)** *Prerequisite:* Junior standing and permission of instructor. Examines the role of the health educator in solving community health problems. Emphasis is placed on appropriate methods and techniques of communication, processes by which a community identifies its needs and the importance of cultural and social factors in community organization and community development. Principles of community organization and planning as a process will be stressed as well as the importance of public health policy.

**PH 485. METHODS IN COMMUNITY HEALTH EDUCATION. (3)** *Prerequisite:* PH 483. The roles and functions of the community health educator in planning, implementing, and evaluating health education programs.

**PH 490. INTERNSHIP. (3-6)** *Prerequisite:* Permission of instructor. Supervised, 400-hour field experience planned with various agencies, organizations, facilities, industries, and businesses with health related missions or programs, and approved by the Department of Public Health. Off-campus travel required, and students are responsible for their own transportation.

### PHIL / PHL – PHILOSOPHY

DEPARTMENT OF PHILOSOPHY AND RELIGION (PHIL)  
DEPARTMENT OF LIBERAL ARTS AND SCIENCES (PHL)

**PHIL 101. ENDURING QUESTIONS: TRUTH AND RELATIVISM. (3)** The study of central positions and arguments concerning the nature and character of Truth: Is there such a thing as Truth? What is real? If there is Truth and reality, how can we know them? [GEN ED B-II]

**PHIL 102. ENDURING QUESTIONS: THE GOOD AND THE BEAUTIFUL. (3)** The study of fundamental questions in moral theory and aesthetics: What is good? What is beauty? On what grounds do we base moral and aesthetic judgments? How are the good and the beautiful related, and how are they different? [GEN ED B-II]

**PHIL 103. ENDURING QUESTIONS: THE COMMITTED LIFE. (3)** The philosophical study of individual and collective commitment to ideals and values in pluralistic society. [GEN ED B-II]

**PHIL 201. LOVE AND FRIENDSHIP. (3)** A study of the four classical forms of love—affection, eros, friendship, and charity—and of the cultural influences which shape and mold our understanding and experience of love. [GEN ED B-II]

**PHIL 202. RACIAL JUSTICE. (3)** An examination of (1) the major perspective that came together to form the civil rights movement of the 1950's and 1960's; (2) the accomplishments and failures of that movement; and (3) the issues of racial justice that remain today. [GEN ED C]

**PHIL 207. PHILOSOPHY AND POPULAR CULTURE. (3)** An examination of the multiple ways that philosophical inquiry can further the student of popular culture. This will include philosophical accounts of the nature and meaning of popular culture as well as the use of various philosophical approaches to interpret specific elements of popular culture such as film, television, music, and sports.

**PHIL 212. PHILOSOPHY AND GENDER THEORY. (3)** Introductory study of philosophical works as they relate to gender theory, queer theory, and feminism.

**PHIL 215. ELEMENTARY LOGIC. (3)** An introductory course in logic which presents the different uses of language and teaches students (1) to evaluate the logical status of statements and the consistency and validity of arguments using both natural and formal language techniques, and (2) to identify informal fallacies. Typically, a student who earns an "A" or "B" in 115 may go on to take 415, with the permission of the instructor of 415. [GEN ED B-II]

**PHIL 299. PHILOSOPHICAL WRITING WORKSHOP. (1)** *Prerequisite:* One philosophy course or concurrent registration in a philosophy course. A workshop designed to help students develop their writing skills and forms of argumentation in a philosophical context.

**PHIL 305. AESTHETICS. (3)** A survey of outstanding philosophies of art and a study of the principles of art criticism.

**PHIL 310. SCIENCE, RELIGION AND CONTEMPORARY LIFE. (3)** *Prerequisite:* Junior level status or permission of instructor. An exploration of the philosophical problems associated with attempts to integrate religious understanding into a cultural environment shaped by recent developments in both natural and social scientific knowledge.

**PHIL 315. PHILOSOPHY OF RELIGION. (3)** *Prerequisite:* One course in philosophy or religious studies. A systematic study of such problems as the nature and existence of God, the relation of faith and reason, human nature and destiny, immortality, evil, and the problem of religious language. Equivalent to RELS 315.

**PHIL 320. ETHICS. (3)** *Prerequisite:* One course in philosophy or sophomore status. An introduction to ethical issues using classical and contemporary texts. Among issues that may be treated are justice, rights, responsibilities, punishment, and obligations regarding the environment. [GEN ED B-II]

**PHIL 321. MORALITY AND BUSINESS. (3)** An introduction to the study of moral choice in the business world. Topics include ethical foundations of business practice in general and criteria for evaluating the moral dimensions of issues such as relations with consumers, environmental impact, quality of work life, hiring, advertising, price setting, and corporate governance. [GEN ED B-II]

**PHIL 322. BIOMEDICAL ETHICS. (3)** A philosophical analysis of ethical problems in biomedical practice and research, including patients' rights, professional responsibilities, death and dying, health care allocation, and reproductive technologies. [GEN ED B-II]

**PHIL 323. SOCIAL ETHICS. (3)** *Prerequisites:* One course in Religious Studies or Philosophy or junior status. Perspectives and issues involved in the public pursuit of justice in a religiously and philosophically diverse society. One short field trip. Equivalent to RELS 323: Social Ethics. [GEN ED B-II]

**PHIL 324. WAR AND PEACE. (3)** *Prerequisite:* One course in philosophy at the 100 or 200 level; or permission of instructor. A philosophical examination of classical and contemporary arguments concerning the use of organized violence to settle human disputes. Topics include just war theories, pacifism and nonviolence, deterrence, militarism, and peacemaking.

**PHIL 329. CONCEPTS OF GOD, GOOD AND EVIL. (3)** *Prerequisite:* Junior level status or permission of instructor. An exploration of the basic problems associated with the conceptual relationships among various concepts of God, good and evil, incorporating non-religious and non-western approaches.

**PHIL 330. PHILOSOPHY OF SCIENCE. (3)** *Prerequisite:* One course in philosophy or permission of instructor. Critical examination of the concepts, presuppositions, and methods of the natural and social sciences. Fundamental concepts such as space, time, matter, and causality are examined.

**PHIL 331. ANALYTIC PHILOSOPHY. (3)** *Prerequisite:* One course in philosophy or permission of instructor. A study in Anglo-American/Analytic philosophy in the 20<sup>th</sup> century focusing on the works of representative figures like Carnap, Frege, Moore, Russell, Quine, and Wittgenstein.

**PHIL 333. MARX AND CRITICAL THEORY. (3)** *Prerequisite:* One course in philosophy or permission of instructor. A study of 19<sup>th</sup> and 20<sup>th</sup> century critical social thought focusing on Marxism and the Frankfurt School.

**PHIL 341. ANCIENT GREEK ENLIGHTENMENT. (3)** *Prerequisite:* One course in philosophy or permission of instructor. The study of primary texts to assess and compare the contributions of Plato and Aristotle and related figures to issues in metaphysics, epistemology, ethics, and political philosophy.

**PHIL 342. REASON AND THE DIVINE IN HELLENISM AND LATE ANTIQUITY. (3)** *Prerequisite: One course in philosophy or permission of instructor.* A selective study to assess and compare the views of Stoics, Sceptics, Epicureans, and others on issues that include reality, knowledge, natural law, well-being, and soul.

**PHIL 343. RENAISSANCE AND RENEWAL IN THE MIDDLE AGES. (3)** *Prerequisite: One course in philosophy or permission of instructor.* A selective study to assess and compare the contributions of medieval thinkers such as Peter Abelard, Roger Bacon, and William of Ockham to issues including language, knowledge and science, reality and God, virtues and conscience, well-being, and political order.

**PHIL 344. EARLY MODERN MORAL PHILOSOPHY. (3)** *Prerequisite: One course in philosophy or permission of instructor.* A selective study of moral problems and movements in early modern European philosophy between the Reformation and the late eighteenth century.

**PHIL 345. DESCARTES AND HUME. (3)** *Prerequisite: One course in philosophy or permission of instructor.* A comparative treatment of the major works and doctrines of Descartes and Hume and their importance for subsequent philosophical developments.

**PHIL 346. KANT AND IDEALISM. (3)** *Prerequisite: One course in philosophy or permission of instructor.* A focused study of the philosophy of Kant and reaction to that philosophy by such figures as Hegel, Schelling, Fichte, or Kierkegaard.

**PHIL 347. LEIBNIZ AND LOCKE. (3)** *Prerequisite: One course in philosophy or permission of instructor.* A comparative treatment of the major works and doctrines of Leibniz and Locke and their importance for subsequent philosophical developments.

**PHIL 348. 20<sup>th</sup> CENTURY PHILOSOPHY. (3)** *Prerequisite: One course in philosophy or permission of instructor.* A study of one or more of the philosophical movements of the 20<sup>th</sup> century.

**PHIL 350. ETHICAL THEORY. (3)** *Prerequisite: One course in philosophy or permission of instructor.* A study of the major normative systems in the history of ethics, and of selected problems in contemporary metaethics, including moral reasoning, skepticism, rights, and theories of justice.

**PHIL 401. READINGS IN PHILOSOPHY. (3)** *Prerequisite: One course in philosophy or permission of instructor.* An intensive study of selected philosophic classics or readings in a selected area of philosophy. May be repeated for different topics.

**PHIL 404. METAPHYSICS AND EPISTEMOLOGY. (3)** *Prerequisites: Junior status, PHIL 215, and one course in philosophy at the 100 or 200 level; or permission of instructor.* Selective study of topics about reality and knowledge, such as existence, appearance and reality, causality, persons, certainty, theory and evidence, explanation and understanding and justification.

**PHIL 415. ADVANCED LOGIC. (3)** *Prerequisite: PHIL 215 or equivalent.* Advanced topics in First Order Logic and topics in the Philosophy of Logic.

**PHIL 426. PHILOSOPHY AND OLD AGE. (3)** *Prerequisite: Junior level or above or permission of instructor.* Examination of philosophical themes bearing on old age, such as: meaning, memory, selfhood, autonomy, immortality, euthanasia, filial obligation, intergenerational justice, authority, dignity, virtue/vice and beauty.

**PHIL 432. PHILOSOPHY AND EARLY MODERN SCIENCE. (3)** *Prerequisite: One philosophy course or instructor permission.* A study of the links between natural philosophy, jurisprudence, and the rise of experimentalism in the seventeenth century.

**PHIL 433. HISTORY OF PHILOSOPHY OF SCIENCE. (3)** *Prerequisite: One philosophy course or instructor permission.* A treatment of the philosophical analyses of problems in science, such as Realism, Instrumentalism, Hypothetico-Deductivism, Models, Empiricism, Experimental Design, and Scientific change or Progress, studies in historical context.

**PHIL 496. SENIOR SEMINAR. (3)** *Prerequisite: Senior standing and major in philosophy or consent of instructor.* A capstone course designed for senior philosophy majors. Students will complete projects that demonstrate their research, writing, and analytical skills. Content areas of the seminar will vary by semester and instructor.

**PHIL 499. RESEARCH IN PHILOSOPHY. (3)** *Prerequisite: Open only to philosophy majors with at least a 3.0 grade point average in their senior year.* Directed study and research in one area of philosophy. The research will culminate in an acceptable thesis.

## PHYS– PHYSICS

### DEPARTMENT OF PHYSICS AND ASTRONOMY

#### NON-SCIENCE MAJORS

These courses do not count toward physics major credit.

**PHYS 100. ENERGY. (3)** A one-semester survey of the concepts of energy applicable to the understanding of energy in our environment. Topics covered are the nature of energy, sources, transmission, consumption, energy and the environment, and prospects for the future. Experiments will be conducted as part of the classroom work. [GEN ED D-I]

**PHYS 101. CONCEPTS OF MOTION. (3)** A one-semester introduction to motion and matter. Topics include the analysis of motion, Newton's Laws of motion, work, energy, the structure and properties of solids, liquids and gases, wave motion and sound. Laboratory experiments are an integral part of this course. [GEN ED D-I (DL)]

**PHYS 103. LIGHT, COLOR AND VISION. (3)** A descriptive account of the nature and properties of light, color and the process of seeing including descriptions of some important optical instruments, such as the eye, the camera and the telescope. Laboratory experiments are an integral part of the course. [GEN ED D-I (DL)]

**PHYS 105. CONCEPTS OF THE PHYSICAL WORLD. (3)** A one-semester introduction to the concepts of physics for students planning to teach in elementary and middle schools. Topics include structure and properties of matter, mechanics, electricity, magnetism, heat, light and sound. Laboratory experiments are an integral part of this course. [GEN ED D-I]

**PHYS 130. ACOUSTICS OF MUSIC AND SPEECH. (3)** The fundamental laws of mechanics and wave motion are studied with particular emphasis being placed upon their application to the production and control of music and speech. Laboratory experiments and field trips are an integral part of the course. Does not count toward credit for the physics major or minor. [GEN ED D-I (DL)]

#### SCIENCE AND MATH MAJORS AND MINORS

**PHYS 140. FOUNDATIONS OF PHYSICS. (3)** *Co-requisite: Math 118 or consent of instructor.* Preparatory course for calculus-based physics. Reasoning, analysis, and problem-solving are developed through introduction to important topics in physics, including relativity, quantum mechanics, and atomic physics. Basic physics concepts such as motion, energy, and waves are also introduced. Does not count towards a major or minor in physics.

**PHYS 175. UNIVERSITY EXPERIENCE FOR PHYSICS MAJORS. (2)** *Prerequisite: For beginning college freshmen or transfer students with less than 24 hours of degree credit.* Transition to university experience. Topics include study skills, critical thinking skills, library education, exploration of majors and careers, degree programs, campus resources and personal development. Issues specific to physics majors, degree requirements, specializations within physics, career trends and resources are addressed.

**PHYS 180. INTRODUCTORY MODERN PHYSICS. (3)** *Prerequisite: MATH 117 or 118. Corequisite: PHYS 181.* A survey of the physics revolution responsible for laptop computers, fiber optics, and nuclear power. Follows the change in physical theory from the 1870's through the 1920's, from geometrical optics and thermodynamics through the theories of relativity and the basic ideas behind quantum mechanics. [GEN ED D-I]

**PHYS 181. INTRODUCTORY MODERN PHYSICS LABORATORY. (1)** *Prerequisite: MATH 117 or 118. Corequisite: PHYS 180.* Required for students enrolled in PHYS 180. Laboratory experience focusing on applications of optics, thermodynamics, the structure and behavior of atoms, wavelike properties of particles, and quantization of light, charge and energy. [GEN ED D-I (DL)]

**PHYS 201. COLLEGE PHYSICS I. (4)** *Prerequisites: High School algebra, geometry and right triangle trigonometry.* An introductory course for students majoring in the applied sciences, emphasizing the application of basic physics principles through problem solving. Topics covered include mechanics, heat and thermodynamics, properties of matter and waves. Includes both lecture and laboratory components. (No calculus is used). [GEN ED D-I]

**PHYS 202. COLLEGE PHYSICS II. (4)** *Prerequisite: PHYS 201. Co-requisite: PHYS 208 (Course and laboratory must be taken together or dropped together.)* A continuation of PHYS 201. The following topics are covered: electrostatics, electric field strength, electric potential difference, resistance, capacitance, DC circuits, magnetism, electromagnetic induction, electromechanical devices, simple AC circuits, reflection, refraction, geometrical optics, physical optics, interference and diffraction. Includes both lecture and laboratory components. (No calculus is used).

## Course Descriptions

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**PHYS 227. ENGINEERING STATICS. (3)** *Corequisite: MATH 237.* Study of external forces acting on particles and rigid bodies in equilibrium including force systems in two and three dimensions, distributed loading, applications to trusses, beams, frames and cables using vector algebra. Also covers centroids and moments of inertia. Equivalent to MET 227.

**PHYS 231. INTRODUCTION TO PHYSICS AND BIOPHYSICS I. (3)** *Prerequisites: High school algebra and geometry. Corequisite: PHYS 232 (Course and laboratory must be taken together or dropped together.)* The first half of a basic course for students of the life sciences, covering the topics of mechanics, heat and thermodynamics, properties of matter, waves and sound. Emphasis is on an understanding of the physical principles operative in biological systems and on the application of physical methods in biology and medicine. [GEN ED D-I]

**PHYS 232. LABORATORY FOR PHYSICS AND BIOPHYSICS I. (1)** *Corequisite: PHYS 231.* Required for students enrolled in 231. Students perform physics experiments on mechanics, fluids, sound, heat and thermodynamics. (course fee) [GEN ED D-I (DL)]

**PHYS 233. LABORATORY FOR PHYSICS AND BIOPHYSICS II. (1)** *Corequisite: PHYS 332.* Required for students enrolled in 332. Students perform physics experiments in electricity, magnetism and optics. (course fee)

**PHYS 255. UNIVERSITY PHYSICS I. (4)** *Prerequisite: MATH 136 with a grade of C or better. Corequisite: MATH 137 and PHYS 256.* This is the first half of a year-long course in calculus-based physics suggested for students in the physical sciences and mathematics. Definitions, concepts, and problem solving will be emphasized. Topics include kinematics, dynamics, energy, conservation laws, rotation, harmonic motion, mechanical waves and thermodynamics. (course fee) [GEN ED D-I]

**PHYS 256. UNIVERSITY PHYSICS I LAB. (1)** *Corequisite: PHYS 255.* Required for students enrolled in PHYS 255. Students perform physics experiments in mechanics and thermodynamics which stress the fundamental definitions and laws developed in the lecture course. Students gain experience in computerized data acquisition and data analysis using modern techniques and equipment. (course fee) [GEN ED D-I (DL)]

**PHYS 265. UNIVERSITY PHYSICS II. (4)** *Prerequisites: PHYS 255 and MATH 137, both with grades of C or better. Corequisite: PHYS 266.* This is the second half of a year-long course in calculus-based physics suggested for students in the physical sciences and mathematics. Definitions, concepts, and problem solving will be emphasized. Topics include electricity and magnetism, (electrical and magnetic fields, forces, energy, potential, charged particle motion, induction, and circuits), sound waves and optics.

**PHYS 266. UNIVERSITY PHYSICS II LABORATORY. (1)** *Prerequisites: PHYS 255 and MATH 137. Corequisite: PHYS 265.* Required for students enrolled in PHYS 265. Students perform physics experiments in electricity and magnetism, waves and optics which stress the fundamental definitions and laws developed in the lecture course. Students gain experience in computerized data acquisition and data analysis using modern techniques and equipment. (course fee)

**PHYS 270. UNIVERSITY PHYSICS III. (3)** *Prerequisite: MATH 136 or equivalent. Co-requisites: PHYS 271 and MATH 137 or equivalent (Course and laboratory must be taken together or dropped together.)* This is the third course in the general physics sequence (250-260-270) suggested for students in the physical sciences and mathematics. Topics include fluids (hydrostatics and hydrodynamics), thermodynamics, vibrations, wave motion, sound, physical optics (interference, diffraction and polarization), and geometrical optics (reflection, refraction, and image formation).

**PHYS 271. LABORATORY FOR UNIVERSITY PHYSICS III. (1)** *Co-requisites: PHYS 270 and MATH 137 or equivalent.* Required for students enrolled in PHYS 270. Students perform physics experiments on elasticity, mechanics of fluids, heat, thermodynamics, ideal gases, simple harmonic motion, sound and optics. Students gain experience in computerized data acquisition and data analysis using modern techniques and equipment.

**PHYS 275. ASTRONOMY RESEARCH METHODS. (3)** *Prerequisite: MATH 117 or equivalent; and permission of department.* Intensive project-based course to introduce students to the fundamentals of astronomy using scientific research investigations as examples. Includes familiarization with astronomical instrumentation for imaging and spectroscopy of celestial objects, digital image reduction and analysis, and interpretation of results. Additional topics include the process and nature of scientific research and professional ethics. This course does not count toward a major or minor in physics or astronomy.

**PHYS 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** To familiarize Ogden Research Scholars and other research oriented students with the fundamentals of choosing a research topic, performing a bibliographical search on a subject, topic, classification of instruments, data taking, data reduction, professional ethics and other research oriented topics. The common points of research methodology in the different scientific areas will be accentuated. Examples will be drawn from the various disciplines. Use of computers will be emphasized. (Course does not count towards any major or minor.) Equivalent to BIOL 295, CHEM 295, CS 295, GEOL 295, MATH 295, and PHYS 295.

**PHYS 332. INTRODUCTION TO PHYSICS AND BIOPHYSICS II. (3)** *Prerequisite: PHYS 231. Co-requisite: PHYS 233 (Course and laboratory must be taken together or dropped together.)* The second half of a basic course for students of the life sciences, covering the topics of electricity, magnetism, light optics, atomic and nuclear physics. Emphasis is on an understanding of the physical principles operative in biological systems and on the application of physical methods in biology and medicine.

### EDUCATION MAJORS AND MINORS

**PHYS 312. LABORATORY PRACTICE AND PROCEDURE. (1)** *Prerequisite: PHYS 270.* A course to assist prospective high school physics teachers in being able to plan, design, equip and teach a high school physics laboratory.

**PHYS 325. CURRENT PROGRAMS IN PHYSICS. (3)** *Prerequisite: One year of college physics.* A systematic study of several current systems of organizing and presenting introductory physics. The prospective teacher will become familiar with various program materials, and will explore the history and philosophy of physics. The student will compare these systems and consider adapting them to different classroom situations.

**PHYS 410. PHYSICS FOR TEACHERS. (3)** *Prerequisite: PHYS 105 or PHYS 201 or PHYS 231 or PHYS 255.* A broad study, including laboratory experiences, of the areas of physics relevant to science teaching in grades K-12. For pre-service or in-service teachers who have a minimal physics background. Instruction will be differentiated according to student needs. Applicable toward a major or minor in physics only for those students obtaining teacher certification.

### DEPARTMENTAL MAJORS AND MINORS

**PHYS 301. ELECTRICAL MEASUREMENTS LABORATORY. (1)** *Prerequisites: PHYS 265 and 266.* Laboratory experiments in fundamental techniques of electrical measurements.

**PHYS 302. ATOMIC PHYSICS LABORATORY. (1)** *Prerequisite: PHYS 321.* Fundamental experiments of historical importance in modern physics.

**PHYS 303. ELECTRONICS LABORATORY. (1)** *Corequisite: PHYS 340.* Required for students enrolled in PHYS 340. Laboratory experiments in basic techniques of analog and digital electronics.

**PHYS 316. COMPUTATIONAL PHYSICS. (3)** *Prerequisites: PHYS 265 or equivalent; CS 240.* Use of computers to solve physics problems, model physical systems, and analyze data. Topics include: realistic motion, data analysis, Fourier transform, solutions to Laplace's equation, and Monte Carlo methods.

**PHYS 318. DATA ACQUISITION USING LABVIEW. (3)** *Prerequisites: PHYS 265 and CS 240 or permission of instructor.* A study of computer-assisted measurement and automation techniques. Students receive hands-on experience in measuring and controlling physical phenomena through laboratory exercises and projects. Recognized as a LabVIEW Academy course by National Instruments. Offers students the opportunity to become certified LabVIEW associate developers.

**PHYS 320. INTRODUCTORY MODERN PHYSICS I. (3)** *Prerequisites: PHYS 270 or equivalent; MATH 136 or equivalent. Co-requisite: MATH 137.* An introductory study of the breakdown of classical physics at the atomic level (quantization) and at high speeds (relativity). Emphasis is placed upon observable effects of the interaction between matter and radiation and the new theories created to explain these effects. The topics include elements of special relativity; particle-like behavior of radiation; wave-like behavior of particles; the hydrogen spectrum and the Bohr theory; elements of quantum mechanics; magnetic properties of atoms and electron spin; the periodic table; spectra of hydrogen-like atoms; and other selected topics of modern physics.

**PHYS 321. INTRODUCTORY MODERN PHYSICS II. (3)** *Prerequisites: PHYS 180 and 265.* A study of the quantization phenomena describing the many electron atoms; statistical distribution laws, conductivity, superconductivity and band theory of solids; nuclear structure, nuclear reactions and other selected topics of modern physics.

**PHYS 330. THERMODYNAMICS. (3)** *Prerequisites: PHYS 321, MATH 237 and 331.* A study of thermodynamic systems, equations of state, entropy, Maxwell-Boltzmann and quantum statistics.



**PHYS 335. GENERAL BIOPHYSICS. (4) [(3) LECTURE; (1) LAB.]** *Prerequisites:* PHYS 231, 332; BIOL 120/121; or permission of instructor. An introduction to the major fields of biophysics in quantitative terms, with emphasis on the physical techniques applied in biomedical practice and research.

**PHYS 337. MEDICAL IMAGING. (4)** *Prerequisites:* BIOL 120, MATH 136, and PHYS 332 or PHYS 256. An introduction to the fundamental and quantitative principles underlying major medical imaging techniques.

**PHYS 340. CIRCUIT THEORY AND ELECTRONICS. (3)** *Prerequisites:* PHYS 265, 301; MATH 137. *Co-requisite:* PHYS 303. This course is suitable for all science majors who will use electronic devices in their work. It is a study of circuit analysis, active devices (such as diodes, transistors, silicon controlled rectifiers) and integrated circuits. Particular emphasis is placed on design and use of simple power supplies, transistor circuits, and operational amplifier circuits.

**PHYS 350. CLASSICAL MECHANICS I. (3)** *Prerequisites:* PHYS 265. *Prerequisites or Co-requisites:* MATH 331 and MATH 237. A study of classical mechanics including equations of motion, coordinate systems, the simple harmonic oscillator, damping forces, vector algebra, momentum and energy theorems.

**PHYS 389. PRACTICUM IN PHYSICS AND ASTRONOMY. (3-6)** Practical experience in a supervised work situation. Application of basic knowledge and skills from the student's major discipline or area of career interest, with opportunities in learning the social, psychological, cultural and communication aspects of work. The student is placed under the direction of a supervisor of a cooperating business, industry, agency or institution. Includes specific, learning objectives and evaluation of the student using one or more of the following formats: (1) written reports, (2) seminar presentations, or (3) tests over selected readings. May be repeated with departmental approval.

**PHYS 398. JUNIOR SEMINAR. (0.5)** *Prerequisite:* PHYS 321 and PHYS 350. Weekly seminar series in current topics in physics. Each student will also prepare for and take a comprehensive examination in physics.

**PHYS 399. RESEARCH PROBLEMS IN PHYSICS AND ASTRONOMY. (1-3)** *Prerequisite:* PHYS 321. Assigned reading or research for qualified undergraduates. May be repeated with change of content, but only three hours will count toward a major.

**PHYS 404. OPTICS LABORATORY. (1)** *Co-requisite:* PHYS 441. Required laboratory for students enrolled in PHYS 441. Fundamental laboratory experiments in geometrical and physical optics.

**PHYS 406. LAB/SOLID STATE. (1)** *Corequisite:* PHYS 460. Fundamental lab experiments in solid state physics.

**PHYS 407. NUCLEAR PHYSICS LAB. (1)** *Corequisite:* PHYS 470. Fundamental lab experiments in nuclear physics.

**PHYS 431. RADIATION BIOPHYSICS (4) [(2) LECTURE; (2) LAB.]** *Prerequisites:* PHYS 201-202 or PHYS 231-332. A treatment of the properties of the various forms of radiation and their interaction with, and effects on, living matter. The laboratory offers training in the monitoring of ionizing radiations and in the techniques of radioactive isotopes as applied in biological and clinical work. Equivalent to BIOL 431.

**PHYS 440. ELECTRICITY AND MAGNETISM I. (3)** *Prerequisites:* PHYS 350 and MATH 237 and 331. A study of classical electricity and magnetism with emphasis on fields, potentials, conductors, dielectrics, steady currents and radiation.

**PHYS 441. OPTICS. (3)** *Prerequisites:* PHYS 180 and 265 and MATH 137. *Co-requisite:* PHYS 404. A study of geometrical and physical optics including wave propagation, refraction, dispersion, diffraction and polarization.

**PHYS 445. ELECTROMAGNETISM II. (3)** *Prerequisites:* PHYS 440. The study of classical electrodynamics with emphasis on Maxwell's equations, electromagnetic waves, dispersion, and radiation.

**PHYS 450. CLASSICAL MECHANICS II. (3)** *Prerequisites:* PHYS 350 and MATH 237 and 331. A study of rigid body motion, moving coordinate systems, Lagrange's equations, small vibrations and the special theory of relativity as applied to mechanics.

**PHYS 460. SOLID STATE PHYSICS. (3)** *Prerequisites:* PHYS 321, MATH 237 and 331. *Corequisite:* PHYS 406. An introductory course in the theory of solids including geometrical and x-ray crystallography, Maxwell-Boltzmann and Fermi-Dirac statistics, free electron theory of metals, Brillouin Zones, band-model of semiconductors and the Hall Effect.

**PHYS 465. GEOPHYSICS. (3)** *Prerequisites:* GEOL 111 and one year of college physics or permission of the instructor. The basic fundamentals of general and exploration geophysics. The initial topics discussed include the origin of the earth and the solar system, the earth's interior, geochronology, gravity and isostasy, seismology, the earth's heat, geomagnetism, upper atmosphere, continents and ocean basins, ridges and island arcs, and continental drift. The theory and applications of exploration geophysics are also covered, especially gravity, magnetic and seismic methods. Equivalent to GEOL 465.

**PHYS 470. NUCLEAR PHYSICS. (3)** *Prerequisites:* PHYS 302, 321 and MATH 331. *Corequisite:* PHYS 407. The properties of the nucleus including radioactivity, radiation detectors, nuclear reactions, nuclear mass and size determination, alpha, beta, and gamma decay, nuclear models, particle accelerators, fission and elementary particles.

**PHYS 475. SELECTED TOPICS IN PHYSICS. (1-3)** *Prerequisites:* Senior standing and permission of the instructor. Each topic is a course in directed study under the supervision of a faculty member. Available for full credit in subsequent sessions with change of content.

**PHYS 480. QUANTUM MECHANICS. (3)** *Prerequisites:* PHYS 321, 350, MATH 237; and one of the following: PHYS 440, 450 or MATH 435. A study of the fundamental principles of quantum mechanics including the hydrogen and helium atoms, the harmonic oscillator, and the Schrödinger wave equation.

**PHYS 489. INTERNSHIP IN PHYSICS AND ASTRONOMY. (3-6)** (May be repeated with department approval.) Practical experience in a supervised work situation. Application of advanced knowledge and skills from the student's major discipline or area of career interest, with opportunities in learning the social, psychological, cultural, and communication aspects of work. The student is placed under the direction of a supervisor of a cooperating business industry, agency or institution. Includes specific learning objectives and evaluation of student using one or more of the following formats: (1) written reports, (2) seminar presentations, or (3) tests over selected readings.

**PHYS 498. SENIOR SEMINAR. (.5)** *Prerequisite:* PHYS 398. Weekly seminar series in current topics in Physics. Each student will also prepare and give an oral presentation of current research in physics.

#### PLS – PARALEGAL STUDIES DEPARTMENT OF PROFESSIONAL STUDIES

**PLS 190C. INTRODUCTION TO THE PARALEGAL PROFESSION. (3)** Introduces state and federal judicial systems and paralegal roles and careers. Emphasizes rules of professional conduct, legal ethics and unauthorized practice of law by non-lawyers.

**PLS 195C. LEGAL RESEARCH AND WRITING. (3)** *Prerequisite:* PLS 190C. The sources and techniques of performing legal research using primary and secondary authorities in a law library and writing a legal argument with correct form and citations.

**PLS 280C. CONTRACT LAW AND THE PARALEGAL. (3)** *Prerequisite:* PLS 293C. Academic and practical instruction in the law of contracts, with a focus on contract formation, performance and breach.

**PLS 281C. MEDIATION FOR THE PARALEGAL. (3)** *Prerequisite:* PLS 293C. Academic and practical instruction in the law of alternative dispute resolution including the rationale behind mediation, the rules of procedure and the relation to the trial process.

**PLS 282C. TORT LAW AND THE PARALEGAL. (3)** *Prerequisite:* PLS 293C. Academic and practical instruction in the law of torts, including intentional torts, negligence and strict liability to prepare students for law practice focused on assault/battery, personal injury, professional malpractice and/or property loss claims.

**PLS 283C. REAL ESTATE LAW FOR THE PARALEGAL. (3)** *Prerequisite:* PLS 293C. Instruction in basic concepts of property law as well as practical application of the law to title examinations, real estate closing transactions and land disputes.

**PLS 291C. CRIMINAL LAW AND PROCEDURE. (3)** *Prerequisite or corequisite:* PLS 195C. Introduces criminal law and procedure, forms and documents, and all stages of criminal litigation preparation by a paralegal using the systems approach. Emphasizes application of Kentucky law.

## Course Descriptions

**PLS 292C. CORPORATE LAW. (3)** *Prerequisite: PLS 195C.* This course will review the substantive corporate law and tax law as is necessary to understand and draft several corporate documents, to include Articles of Incorporation, Corporate Bylaws, Shareholder's and Director's Minutes, name change of corporation, annual verification reports, and shareholder's agreements. This course will also include instruction regarding mergers, acquisitions, common and preferred stock, voting by proxy, stock dividends, sole proprietorship, partnerships, liquidations and dissolutions, and the ethical guidelines to which a paralegal should adhere will be pursued.

**PLS 293C. CIVIL PROCEDURE. (3)** *Prerequisite: PLS 195C.* The course is designed to follow the procedures of a civil lawsuit from the first client contact through discovery, settlement negotiations or trial, and appeal. Course work will focus on the role and responsibilities of the paralegal in preparing court documents, investigation, client and witness contact, discovery, and trial assistantship. Federal and state rules governing the conduct of a civil lawsuit will be examined in detail.

**PLS 294C. ADMINISTRATIVE PRACTICE AND PROCEDURES. (3)** *Prerequisite: PLS 195C.* Detail laws pertaining to Medicaid, Medicare and related topics, and Kentucky unemployment law. Uses hands-on approach, including mock federal and state administrative hearings.

**PLS 295C. ESTATE PLANNING AND ADMINISTRATION. (3)** *Prerequisite or corequisite: PLS 195.* Paralegal estate planning and probate practice under Kentucky statutes, including initial steps, asset management and distribution, tax issues, will and trusts, and drafting related documents.

**PLS 296C. FAMILY LAW. (3)** *Prerequisite or corequisite: PLS 195C.* This course will involve preparation of various contested and uncontested divorce pleadings to include petition for dissolution of marriage; findings of fact, conclusions of law and decree of dissolution; simple and complex separation agreements; settlement agreements; petitions for temporary custody and change in child support. Preparation of other documents to include petition for adoptions and application for AFDC. In addition, the student will receive instruction regarding skills needed in client interviewing, organization of financial records, answering of interrogatories and request for production of documents and ethical guideline to which a paralegal should adhere.

**PLS 298C. ADVANCED LEGAL RESEARCH AND WRITING. (3)** *Prerequisites: PLS 195C, PLS 293C, PLS 293C.* The sources and techniques of performing sophisticated independent research, including application of computer-assisted legal research methods and drafting advanced legal documents.

**PLS 299C. INTERNSHIP IN PARALEGAL STUDIES. (3)** *Prerequisites: PLS 195C, PLS 293C, PLS 298C. Completion of all other PLS courses is suggested. Program advisor approval and advanced registration is required.* One hundred fifty hours of practical experience in a legal setting under an attorney's supervision. Meetings emphasize professional legal ethics. Develops job placement and evaluation skills. (Grading: Pass/Fail)

### POP – POPULAR CULTURE STUDIES POTTER COLLEGE OF ARTS AND LETTERS

**POP 201. INTRODUCTION TO POPULAR CULTURE STUDIES. (3)** *Prerequisite: ENG 100 or the equivalent or permission of instructor.* An interdisciplinary, team-taught introduction to the major theories and subjects of the study of popular culture. The course offers a range of theoretical and methodological approaches to considering the procedures, audiences and meanings of the culture of everyday life in a variety of historical and cultural contexts.

**POP 399. SPECIAL TOPICS IN POPULAR CULTURE STUDIES. (3)** A detailed study of special topics in popular culture studies.

**POP 498. SENIOR SEMINAR IN POPULAR CULTURE STUDIES. (4)** *Prerequisites: POP 101 and at least 21 hours in major and senior standing, or permission of instructor.* A capstone course designed for popular culture studies major. Under the guidance of a faculty mentor, students will complete a substantial independent research or creative project and share their work with peers in a seminar setting.

### PS / POLS – POLITICAL SCIENCE DEPARTMENT OF POLITICAL SCIENCE (PS) DEPARTMENT OF LIBERAL ARTS AND SCIENCES (POLS)

#### GENERAL COURSES

**PS 201. CONCEPTS OF POLITICAL SCIENCE. (3)** *Prerequisite: PS 110 or permission of instructor.* Examines the linkage between politics and political thought in modern societies. Students apply a variety of theoretical concepts to specific policy areas.

**PS 299. CONTEMPORARY TOPICS IN POLITICAL SCIENCE. (1-3)** Examination of significant current issues in political science not covered in regular departmental offerings.

**PS 300. MODEL ASSEMBLY (SEMINAR). (1)** *Prerequisites: PS 250.* Explores the workings of a major international organization (e.g., NATO, OAU, Arab League, or UN). Students portray delegates to the organization at a simulation involving university students from around the country. The country being portrayed, the organization being simulated, and cost to student vary year by year.

**PS 301. RESEARCH METHODS IN POLITICAL BEHAVIOR. (3)** *Prerequisite: PS 110.* The understanding and application of scientific research methods for the analysis of political behavior; theoretical and applied skills in research development and analysis using contemporary computer techniques.

**PS 303. POLITICS AND FILM. (3)** Explores the relationship between politics and film. Demonstrates how film serves as a political archive and agent of social change and how film affects political views and representations of reality.

**PS 311. PUBLIC POLICY. (3)** *Prerequisite: PS 110.* Examines how issues get on the government agenda; how policy decisions are made; who implements policy and how well.

**PS 330. INTRODUCTION TO POLITICAL THEORY. (3)** *Prerequisite: PS 110.* A survey of the great thinkers and issues of politics that have shaped western civilization.

**PS 331. POLITICS OUTSIDE THE BOX. (3)** *Prerequisite: PS 110.* Provides insight into the social construction of power by investigating political symbols, characters and argument in popular culture and public policy.

**PS 400. SELECTED TOPICS IN AMERICAN GOVERNMENT. (3)** *Prerequisite: Junior or senior class standing or permission of instructor.* Course provides advanced students with an opportunity to analyze important substantive problems and current issues not presently covered by departmental offerings. May be repeated once.

**PS 403. FIELD STUDIES IN POLITICS. (3)** *Prerequisites: PS 110 and permission of the instructor.* Course is designed to involve students in practical problems of political research. Students are directed through the design and execution of a major field study. May not be repeated toward major or minor credit. (Grading: Pass/fail)

**PS 405. WASHINGTON INTERNSHIP AND ACADEMIC SEMINARS. (3-6)** An individualized internship and/or seminar experience in Washington, D.C. tailored to the student's area of interest. Placement is determined by the department academic advisor in collaboration with Washington professionals. May not be repeated toward major or minor credit. (Grading: Pass/fail)

**PS 407. DIRECTED STUDIES IN GOVERNMENT. (3)** *Prerequisites: 3.0 grade point average; PS 110 or permission of the instructor.* Allows students to work independently with a specific instructor on an approved topic, issue or political concept/theme.

**PS 430. SELECTED TOPICS IN POLITICAL THEORY. (3)** *Prerequisite: PS 330.* Examination of specialized topics in political theory not covered in regular departmental offerings.

**PS 435. AMERICAN POLITICAL THOUGHT. (3)** *Prerequisite: Junior standing or permission of the instructor.* A study of American political theory from the American Revolution to the present, including issues such as slavery, civil rights, and the meaning of political and economic freedom.

**PS 497. SENIOR SEMINAR IN INTERNATIONAL AFFAIRS. (3)** *Prerequisite: Senior standing or permission of instructor.* A capstone seminar that strengthens students' research, written and oral communication skills in international affairs and engages students and faculty in sustained consideration of significant international issues/questions.

**PS 499. SENIOR SEMINAR IN GOVERNMENT. (1)** *Prerequisite: Senior standing.* Integrates concepts and approaches learned during study of government. Engages students and faculty in sustained consideration of significant political issues/questions. (Grading: Pass/fail)

#### AMERICAN GOVERNMENT AND POLITICS

**PS 110 / POLS 110C. AMERICAN NATIONAL GOVERNMENT. (3)** The essentials of the political system and processes, particularly at the national level, in the United States. Approved for general education credit. [GEN ED C]

**PS 304. STATE GOVERNMENT. (3)** *Prerequisite: PS 110.* Political features of the American states and their governments. Explores similarities and differences among the states' constitutions and key governmental institutions.

**PS 310. THE AMERICAN PRESIDENCY. (3)** *Prerequisite: PS 110 or permission of the instructor.* An examination of the American presidency as a political institution; and the development of the presidential office, its powers and functions.

**PS 316. THE LEGISLATIVE PROCESS. (3)** *Prerequisite: PS 110 or permission of instructor.* A study of legislatures and their role in the American government system. The emphasis is on the U.S. Congress but other legislative bodies are also studied.

**PS 320. AMERICAN STUDIES I. (3)** *Prerequisite: Junior standing or permission of instructor.* This course is designed to examine the diverse origins and the decisive elements in the development of American culture. It should also provide a wide appreciation and a greater understanding of the mainstream of American thought. These goals are accomplished through the coordinated application of numerous viewpoints drawn from the contributing disciplines of English, Political Science and History.

**PS 321. AMERICAN STUDIES II. (3)** *Prerequisite: Junior standing or permission of instructor.* This course is designed to examine the diverse origins and the decisive elements in the development of American culture. It should also provide a wide appreciation and a greater understanding of the mainstream of American thought. These goals are accomplished through the coordinated application of numerous viewpoints drawn from the contributing disciplines of English, Political Science and History.

**PS 370. AMERICAN POLITICAL PARTIES AND INTEREST GROUPS. (3)** *Prerequisite: PS 110.* Explores the role that political parties and interest groups play in American politics.

**PS 412. KENTUCKY GOVERNMENT AND POLITICS. (3)** *Prerequisite: PS 110 or permission of instructor.* A general survey course tracing the government and political development of the state from its constitutional beginning to the present. Primary focus will be on the major factors and issues in the state's political development within the context of the national governmental setting. The course will trace the role and influence of various political and social institutions in the state's political development and their implications for the current political and governmental situation.

**PUBLIC ADMINISTRATION**

**PS 338. GOVERNMENT AND ETHICS. (3)** *Prerequisite: PS 110 or permission of the instructor.* Course examines ethical issues and controversies emerging from the behavior and decisions of public officials within the American political system. A variety of pedagogical techniques are employed to stimulate and develop ethical thinking, moral reasoning and written and oral communication skills.

**PS 440. ELEMENTS OF PUBLIC ADMINISTRATION. (3)** *Prerequisite: PS 110 or permission of the instructor.* Introductory survey of governmental administration; emphasizes relationships between political issues and the practice of administration in areas such as organizational structures, personnel and financial management, control and accountability, and ethical issues.

**PS 441. PUBLIC PERSONNEL ADMINISTRATION. (3)** *Prerequisite: PS 440 or permission of instructor.* A systematic survey of public personnel administration in the U.S. Discusses the development of modern personnel systems in the public sector and emphasizes contemporary trends at the state and local level as well as the national level of government.

**PS 442. GOVERNMENTAL FINANCIAL ADMINISTRATION. (3)** *Prerequisite: PS 440 or permission of instructor.* A study of the financial administration process of government, with emphasis on local government. Subjects covered range from budgeting to risk management.

**PS 480. SELECTED TOPICS IN PUBLIC POLICY. (3)** *Prerequisite: PS 440 or permission of the instructor.* Seminar on special topics in public policy and public administration.

**PS 498. INTERNSHIP IN PUBLIC ADMINISTRATION. (3)** *Prerequisites: PS 301 and 440 and permission of the instructor.* Designed to provide the student with work experience in a public sector or non-profit agency combined with faculty direction. May not be repeated. (Grading: Pass/fail)

**PUBLIC LAW**

**PS 220. JUDICIAL PROCESS. (3)** *Prerequisite: PS 110.* An introduction to the American legal system, the process of legal reasoning and legal resolution of value conflicts.

**PS 324. MOCK TRIAL I. (1.5-3)** *Prerequisite: PS 110 or permission of instructor.* Introductory study of trial techniques used by lawyers in the courtroom. Students gain an appreciation for courtroom procedure, legal issues and public speaking by taking on the roles of attorneys and witnesses in a fictitious courtroom trial. (Grading: Pass/Fail)

**PS 325. MOCK TRIAL II. (1.5-3)** *Prerequisites: PS 324 and PS 110 or permission of the instructor.* Continuation of study of trial techniques used by lawyers in the courtroom. Students will concentrate on trial strategy, examination of witnesses and the presentation of arguments by taking on the roles of attorneys in a fictitious courtroom trial. (Grading: Pass/Fail)

**PS 326. CONSTITUTIONAL LAW. (3)** *Prerequisite: PS 110.* Study and analysis of leading constitutional decisions dealing with judicial review, government powers over domestic and foreign affairs, federalism and the relationships between the functional branches of government.

**PS 327. CIVIL LIBERTIES. (3)** *Prerequisite: PS 110.* Study and analysis of leading constitutional decisions and other materials concerning individual liberties in the U.S.

**PS 328. CRIMINAL JUSTICE PROCEDURES. (3)** *Prerequisite: PS 110.* A study of constitutional criminal procedure, principally under the Fourth, Fifth, Sixth, Eighth, Ninth, and Fourteenth Amendments to the U.S. Constitution.

**PS 424. ADMINISTRATIVE LAW. (3)** *Prerequisite: Junior standing or permission of instructor.* A study of the development of and trends in administrative law with emphasis on the problems caused by the exercise of quasi legislative and quasi judicial powers by administrative agencies, including the rights, duties and liabilities of public officials, relief against administrative action, jurisdiction, conclusiveness and judicial control.

**POLITICAL CAMPAIGN MANAGEMENT**

**PS 371. PUBLIC OPINION AND ELECTORAL BEHAVIOR. (3)** *Prerequisite: PS 110.* A study of the formation and expression of public opinion, of the attitudes and experiences which influence voting, and of the manner in which public policy is related to opinion and elections.

**PS 372. POLITICS AND THE MASS MEDIA. (3)** *Prerequisite: PS 110.* A study of the impact of television, newspapers, news magazines, and radio on national political institutions and political processes.

**PS 373. MINORITY POLITICS. (3)** *Prerequisite: PS 110 or permission of instructor.* A study of the contemporary status and efforts made by African Americans, Hispanics and other minority groups to organize for political action; discusses political and socioeconomic constraints on the development of that power.

**PS 374. WOMEN AND POLITICS. (3)** *Prerequisite: PS 110, WOMN 200 or permission of the instructor.* An examination of the political, economic and social status of American women from an historical and contemporary perspective; explores issues of concern to women in a political context.

**PS 375. FUNDAMENTALS OF POLITICAL CAMPAIGN MANAGEMENT. (3)** *Prerequisite: PS 110 or permission of instructor.* Provides students with an orientation to the basic systems and interrelated roles, which must be managed in order to produce electoral victory.

**PS 376. POLITICAL MANAGEMENT. (3)** Applied course with focus on developing skills related to political management including fundraising, issue advocacy, and media strategy.

**PS 488. SEMINAR IN POLITICAL COMMUNICATION. (3)** *Prerequisite: Senior standing, or permission of instructor.* The role, processes, and effects of communication within the context of politics. This course is required of all Political Communication Certificate students.

**INTERNATIONAL RELATIONS**

**PS 250. INTERNATIONAL POLITICS. (3)** An introductory course in international relations which is designed to acquaint the student with basic theories, terminology, motivations, inter-relationships and problems on an international scale. [GEN ED C]

**PS 350. POLITICAL TERRORISM. (3)** *Prerequisite: PS 250 or permission of the instructor.* A survey of terrorism, recent trends, organizational structure, negotiations, role of the media, counter terrorism, and the impact on modern democracies.

**PS 355. INTERNATIONAL ORGANIZATION AND LAW. (3)** *Prerequisite: PS 250 or permission of the instructor.* Explores how the behavior of nominally sovereign countries is constrained or otherwise influenced by international law and other efforts to "organize" international relations. International institutions such as the United Nations and the Organization for Security and Cooperation in Europe are examined.

**PS 357. U.S. FOREIGN POLICY. (3)** *Prerequisite: PS 110 or permission of the instructor.* Analysis of the pattern and process of U.S. foreign policy, particularly in the contemporary era. Includes study of the major internal and external factors, which shape foreign policy decisions.

**PS 449. INTERNATIONAL POLITICAL ECONOMY. (3)** *Prerequisites: PS 250, 260 or permission of instructor.* Explores the role of governments, corporations, non-governmental entities and multilateral institutions in the global economy. Discusses issues of free trade and protectionism, both tariffs and non-tariff barriers to trade. Examines issues of monetary policy in national and international contexts.



## Course Descriptions

### PS 450. SELECTED TOPICS IN INTERNATIONAL RELATIONS. (3)

*Prerequisite:* PS 250 or permission of instructor. Based in a seminar setting, this course facilitates an extensive exploration of particular aspects of international relations in the contemporary world.

### PS 457. THEORIES OF WAR AND PEACE IN INTERNATIONAL RELATIONS. (3)

*Prerequisite:* PS 250 or permission of the instructor. Explores the various theories of the outbreak, conduct and causes of war and theories of war termination and international peace.

### COMPARATIVE GOVERNMENT AND POLITICS

**PS 200. INTRODUCTION TO LATIN AMERICA. (3)** This course is a broad interdisciplinary introduction to the study of Latin America, emphasizing its regions, peoples and cultures. [GEN ED E]

### PS 260/ POLS 260C. INTRODUCTION TO COMPARATIVE POLITICS. (3)

*Prerequisite:* PS 110 or permission of instructor. This course examines various characteristics of different political systems around the world. It introduces contending theories which seek to explain differences and similarities in governments and politics. [GEN ED C]

**PS 267. INTRODUCTION TO EAST EUROPEAN STUDIES. (3)** An introduction to the political, social and economic development of Eastern Europe. [GEN ED C]

### PS 360. GOVERNMENT AND POLITICS OF BRITAIN AND CANADA. (3)

*Prerequisite:* PS 260 or permission of the instructor. A comparative analysis of the political cultures, institutions and processes of Britain and Canada. Course includes a comprehensive study of the parliamentary executive system and reference to major topical problems.

### PS 361. GOVERNMENT AND POLITICS OF WESTERN EUROPE. (3)

*Prerequisite:* PS 260 or permission of the instructor. Structured comparative analysis of various Western European states. Includes an examination of political cultures, institutional organizations, and the policy processes in selected states.

**PS 362. LATIN AMERICAN GOVERNMENT AND POLITICS. (3)** *Prerequisite:* PS 260 or permission of the instructor. Basic governmental and political processes in Latin America. Emphasis on social and economic problems, political development, leadership recruitment, political instability and change.

**PS 363. POLITICS OF DEVELOPING NATIONS. (3)** *Prerequisite:* PS 260 or permission of the instructor. A study of the political culture, processes and problems of nations that have become independent since World War II.

### PS 365. GOVERNMENT AND POLITICS OF THE MIDDLE EAST. (3)

*Prerequisite:* PS 260 or permission of instructor. A comparative analysis of the political culture, institutions and processes of key Middle Eastern states. Focuses on issues of international and geostrategic significance of the region. [GEN ED E]

**PS 366. GOVERNMENT AND POLITICS IN EAST ASIA. (3)** *Prerequisite:* PS 260 or permission of the instructor. An analysis of political development in selected East Asian nations, including Japan, Korea, China, Singapore and Thailand. Includes study of the interrelationship between politics, economics and culture primarily in the post-World War II period. [GEN ED E]

### PS 367. GOVERNMENT AND POLITICS OF RUSSIA AND EASTERN EUROPE. (3)

*Prerequisite:* PS 260 or permission of the instructor. An analysis of government and politics of Russia and Eastern European countries with emphasis on political processes and institutions, political and economic reforms, and the prospects for democratic government.

**PS 368. AFRICAN GOVERNMENT AND POLITICS. (3)** *Prerequisites:* PS 250, PS 260 or permission of the instructor. Examines sub-Saharan African political and economic development. Focuses on several selected countries and explores the common political and economic problems and opportunities confronting African states. [GEN ED E]

**PS 460. SELECTED TOPICS IN COMPARATIVE POLITICS. (3)** *Prerequisites:* PS 250, 260 or permission of instructor. Based on a seminar setting, this course facilitates an extensive exploration of particular aspects of comparative politics in the contemporary world.

*The following courses are offered only in Frankfort for students who are participating in the Kentucky Legislative Intern Program:*

**PS 490. INTERNSHIP IN STATE GOVERNMENT. (6)** Evaluation by the academic coordinator and agency supervisors of the intern's performance of assigned agency functions. Interns are full-time employees (40 hr/wk) for the duration of their internship program. Job assignments are made with the mutual consultation and consent of the intern, the agency and the academic coordinator.

**PS 491. RESEARCH IN STATE GOVERNMENT. (3)** Submission of a major research paper by the intern to an academic coordinator. Research is supervised by the academic coordinator in conjunction with the agency supervisor. May deal with assigned agency research function or may be independent of intern's role, but related to the agency need.

**PS 492. KENTUCKY LEGISLATIVE PROCESSES. (3)** *Prerequisite:* Acceptance into the Kentucky Legislative Intern Program. Focuses on contemporary problems and processes of the state legislative process. Discusses and analyzes state legislative affairs through discussion of issues by key state government personnel as well as through textbook materials.

**PS 493. ISSUES IN HUMAN RESOURCE MANAGEMENT. (3)** Focuses on Kentucky public personnel practices; examines the Kentucky merit system in theoretical and applied context; extensive emphasis on practical knowledge and use of State personnel for class lectures and projects.

### PSY / PSYC – PSYCHOLOGY

#### DEPARTMENT OF PSYCHOLOGY (PSY)

#### DEPARTMENT OF LIBERAL ARTS AND SCIENCES (PSYC)

**PSY 100 / PSYC 100C. INTRODUCTION TO PSYCHOLOGY. (3)** An introductory course dealing with principles of behavior, scientific methods of psychology, measurement, learning, perception, motivation, development, personality, abnormal behavior, social behavior, intelligence, and other topics. [GEN ED C]

**PSY 175. UNIVERSITY EXPERIENCE. (3)** *Special Requirements:* For beginning college freshman or transfer students with fewer than 24 semester hours of credit. Transition to university experience. Topics include study skills, library education, exploration of majors and careers, degree programs, campus resources and personal development. Special attention is given to educational requirements, careers and resources in the field of psychology.

**PSY 199 / PSYC 199C. INTRODUCTION TO DEVELOPMENTAL PSYCHOLOGY. (3)** A general course in developmental psychology covering the entire life span. Included are a description of growth stages, theories of development, and research methods of development. [GEN ED C]

**PSY 210. RESEARCH METHODS IN PSYCHOLOGY. (3)** *Prerequisites:* PSY 100 with a grade of C or higher. *Corequisite:* PSY 211. Introduction to scientific thinking, research design, and research methods in psychology. Includes the nature of scientific explanations, validity, reliability, measurement scales, the rationale underlying hypothesis testing, critical evaluation of scientific evidence presented in journals and popular media, and how to write research reports.

**PSY 211. RESEARCH METHODS IN PSYCHOLOGY LABORATORY. (1)** *Prerequisite:* PSY 100 with a C or better. *Corequisite:* PSY 210. Laboratory course to accompany PSY 210. Laboratory exercises involving research design, methodology, data collection, methods of organizing and presenting data, and research report writing.

**PSY 250 / PSYC 250C. ADJUSTMENT AND PERSONAL GROWTH. (3)** Individual, social, and cultural determinants of personal growth and healthy life adjustment. Topics include stress and coping, relationships, values, career development, and decision-making. [GEN ED F]

**PSY 290. SUPERVISED STUDY IN PSYCHOLOGY. (1-3)** *Prerequisite:* PSY 100. Directed readings or research under faculty supervision. Students must make their own arrangements in advance for supervision by a faculty member. May be repeated for a total of up to six hours, with no more than three hours counted in the first 36 hours of a psychology major.

**PSY 299. SELECTED TOPICS IN PSYCHOLOGY (SEMINAR). (1-3)** *Prerequisite:* PSY 100. Study and discussion focusing on various issues in psychology; topics will vary based on faculty and student interest. May be repeated for a total of up to six hours, with no more than three hours counted in the first 37 hours of a psychology major.

**PSY 301. STATISTICS IN PSYCHOLOGY. (3)** *Prerequisites:* PSY 210, 211, and MATH 116 (or higher math course) all with a grade of "C" or better. . Methods of organizing, describing, and analyzing psychological data.

**PSY 310. EDUCATIONAL PSYCHOLOGY: DEVELOPMENT AND LEARNING. (3)** *Prerequisite:* PSY 100. A required educational psychology course for students seeking teacher certification. Educational psychology is designed to give the student a thorough understanding of the theories and principles of psychology as applied to teaching and learning. The students will demonstrate knowledge, understanding, and application of theories and principles of development, learning, memory, motivation, individual differences, instruction, classroom management, and measurement and evaluation. PSY 310 may not be counted toward the psychology major or minor.

**PSY 321. CHILD DEVELOPMENTAL PSYCHOLOGY. (3)** *Prerequisites: PSY 100 or 199.* An introduction to the factors influencing normal psychological development during infancy and childhood. Theories, methodology, and current research in child development, including prenatal, physical, language, cognitive, social, and personality development, are considered.

**PSY 340. SPORT PSYCHOLOGY. (3)** *Prerequisite: PSY 100.* Theory, topics and applications within the field of sport and exercise psychology.

**PSY 345. PSYCHOLOGY OF SEXUALITY. (3)** *Prerequisite: PSY 100 or PSY 199.* Explores psychological, social, emotional, spiritual and cultural aspects of sexuality including sexual development across the life span, consensual and coercive sexual behavior, sex and gender, sexual orientation, sexuality and religious traditions, and sexuality education.

**PSY 350. SOCIAL PSYCHOLOGY. (3)** *Prerequisite: Sophomore standing.* A general introduction to social psychology for majors and non-majors in psychology. The psychology of how people think about and relate to others. Topics include love, altruism, aggression, conformity, behavior in groups, leadership, intergroup conflict, aggression, prejudice, and persuasion. [GEN ED C]

**PSY 355. ISSUES IN CROSS-CULTURAL PSYCHOLOGY. (3)** *Prerequisite: PSY 100 or equivalent and sophomore standing.* Examines the impact of culture on major principles, theories, and applications of psychology, including social behavior, gender, communication, development and abnormal psychology. Involves interacting with people from diverse cultural backgrounds.

**PSY 361. PSYCHOLOGICAL TESTS AND MEASUREMENTS. (3)** *Prerequisites: PSY 210 and 211, or permission of the instructor.* The consideration of methodological, theoretical, and ethical problems involved in test construction and use. Topics which are covered include reliability, validity, predictive efficiency, structure of human abilities, achievement tests, and projective techniques.

**PSY 365. INTELLIGENCE AND CREATIVITY. (3)** *Prerequisite: PSY 100.* A survey of the history, theories, nature, measurement, origins in heredity and environment, contemporary research, social influence, and uses and abuses of the concepts of intelligence and creativity.

**PSY 370. INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY. (3)** *Prerequisite: PSY 100.* The application of psychological principles and research techniques to industrial and personnel problems including selection, efficiency, management models, and organizational behavior.

**PSY 371. THE PSYCHOLOGY OF SALES BEHAVIOR. (3)** *Prerequisite: PSY 100.* This course includes the psychology of consumer behavior and its implications for sales ethics, psychology of the behavior of sales personnel, the psychology and techniques of the sales process, sales motivation advertising psychology, and the psychology of sales management.

**PSY 390. FIELD EXPERIENCE IN PSYCHOLOGY. (3-6)** *Prerequisites: Junior standing; Psychology major or minor with 12 hours in psychology and approval of the department, or Gerontology minor with twelve hours in the minor including PSY 423 and approval of the department; 2.5 GPA in psychology or gerontology. Field placement sites are approved based on consistency with the student's academic preparation.* Practical work experience in a supervised psychology-related work setting with a cooperating psychology or human services agency, private business, or industry. PSY 390 may be taken for three hours credit at one time. Only three hours will count within the first 37 hours of a psychology major or within the first 12 hours of a psychology or gerontology minor. Students are responsible for arranging their own transportation to designated or assigned sites.

**PSY 405. COGNITIVE PSYCHOLOGY. (3)** *Prerequisites: PSY 100 and junior standing or permission of the instructor.* Overview of theory and research in human cognition, with primary emphasis on attention, memory, judgment and decision-making, and problem solving. Cognition in special populations (e.g. elderly, brain-injured, mentally disordered) is also covered.

**PSY 410. PSYCHOLOGY OF LEARNING. (3)** *Prerequisites: PSY 100 and junior standing or permission of the instructor.* Facts and principles of human and animal learning, especially as these have been treated in theories attempting to provide a general framework for understanding what learning is and how it takes place.

**PSY 411. PSYCHOLOGY OF SENSATION AND PERCEPTION. (3)** *Prerequisites: PSY 100 and junior standing or permission of the instructor.* Basic sensory mechanisms involved in taste, smell, hearing, and sight, with primary emphasis on auditory and visual perception. Topics include speech perception; visual illusions: color vision; perception of form, shape, movement, time, and space; perceptual motor coordination; and the development of perception.

**PSY 412. PSYCHOLOGY OF MOTIVATION AND EMOTION. (3)** *Prerequisites: PSY 100 and junior standing or permission of the instructor.* A study of the principal theories of motivation and emotion. Examination of needs, cognition, and social aspects. Includes a critical review of research and application of these theories to human behavior.

**PSY 421. PSYCHOLOGY OF EARLY ADOLESCENCE. (3)** *Prerequisites: PSY 100 and junior standing or permission of the instructor.* Focuses on theory and research related to cognitive, personality, and social development in early adolescence. Theories are applied to important developmental contexts such as peers, families, and learning environments. Designed for students planning to meet middle grades certification requirements. Either PSY 421 or PSY 422, but not both, may be taken to satisfy the requirements of the psychology major or minor. PSY 421 may not be used to satisfy the Developmental Course Category restricted elective requirement of the major.

**PSY 422. ADOLESCENT PSYCHOLOGY. (3)** *Prerequisites: PSY 100 and junior standing or permission of the instructor.* Introduction to behavior and development from early adolescence to adulthood, emphasizing a critical review of research and literature. Either PSY 421 or PSY 422, but not both, may be taken to satisfy requirements of the Psychology major or minor.

**PSY 423. PSYCHOLOGY OF ADULT LIFE AND AGING. (3)** *Prerequisites: PSY 100 and junior standing or permission of the instructor.* Psychological processes in adulthood and aging. Emphasis on contemporary theories, methodological issues, and interactions of psychological, biological, social, and environmental factors in adulthood and aging.

**PSY 424. TOPICS IN DEVELOPMENTAL PSYCHOLOGY. (3)** *Prerequisite: PSY 199 or PSY 321 and junior standing or permission of the instructor.* A consideration of special topics to acquaint students with theoretical and research issues of particular interest in developmental psychology. May be repeated for credit provided the topic differs.

**PSY 430. PSYCHOLOGY OF WOMEN. (3)** *Prerequisites: Six hours in psychology, including PSY 100, and junior standing.* Scientific study of the behavior and mental processes of girls and women. Topics include gender differences and similarities, inclusion of females in psychological research, psychological development of girls and women, sexuality, and mental health issues.

**PSY 432. PSYCHOLOGY OF THE GIFTED AND CREATIVE. (3)** *Prerequisite: PSY 100 and junior standing or permission of the instructor.* The course covers identification of gifted children and adults with an emphasis upon the development of educational programs which maximize the development of giftedness. Included will be a critical review of research and literature in the areas of giftedness and creativity.

**PSY 435. MORAL DEVELOPMENT AND EDUCATION. (3)** *Prerequisites: PSY 100 and junior standing or permission of the instructor.* An in-depth study of and reflection upon psychological theories of morality, moral development, moral functioning and current models of moral education and professional identity.

**PSY 440. ABNORMAL PSYCHOLOGY. (3)** *Prerequisites: Six hours in psychology, including PSY 100, and junior standing or permission of instructor.* Introduction to abnormal psychology emphasizing forms of abnormal behavior, etiology, developmental factors, interpretations, behavioral manifestations and treatment programs.

**PSY 441. PSYCHOLOGICAL ASPECTS OF ALCOHOLISM. (3)** *Prerequisites: PSY 100, 440 and permission of instructor.* Intensive study of theories and research regarding alcoholism; emphasis on application of psychological theories to the treatment of alcoholism and on psychological research regarding alcoholism.

**PSY 442. BEGINNING SKILLS IN PSYCHOLOGICAL INTERVIEWING. (3)** *Prerequisites: Six hours in psychology, including PSY 100, junior standing and permission of instructor.* Paraprofessional skills for conducting structured and unstructured interviews in non-therapy settings. Emphasizes skills development in addition to theoretical material.

**PSY 443. BEHAVIOR MODIFICATION. (3)** *Prerequisites: Six hours in psychology, including PSY 100, and junior standing or permission of the instructor.* Introduction to theory and application of behavioral modification techniques. Emphasizes the use of behavior modification in education, child rearing, clinics, and self-modification. Course activities or assignments may require the individual to disclose personal information.

**PSY 450. PSYCHOLOGY OF PERSONALITY. (3)** *Prerequisites: Six hours of psychology, including PSY 100 and junior standing or permission of instructor.* Overview of the major theoretical approaches to the study of personality, including historical as well as contemporary theorists, avenues of analysis, and concepts.

## Course Descriptions

**PSY 455. INTRODUCTION TO CLINICAL PRACTICE OF PSYCHOLOGY. (3)** *Prerequisites: PSY 440 or 450, and junior standing or permission of the instructor.* Survey of theories, models, and techniques in clinical, counseling, and school psychology. Includes emphasis on professional ethics for psychologists. Field experiences in appropriate off-campus settings may be required. Students are responsible for arranging their own transportation to designated or assigned sites.

**PSY 470. PSYCHOLOGY AND LAW. (3)** *Prerequisites: PSY 100 and junior standing or permission of instructor.* Psychological knowledge that is pertinent to the legal system. Emphasis on how human characteristics and psychological factors influence attitudes, decisions, and behavior throughout the legal process. Field trips to off-campus locations will be required. Students are responsible for arranging their own transportation.

**PSY 473. TRAINING IN BUSINESS AND INDUSTRY. (3)** *Prerequisites: PSY 100 and 370 or MGT 310 and 311 or permission of the instructor.* An introduction of theories, research, and methods of training needs analysis, program design, implementation, and evaluation.

**PSY 475. GRANT WRITING. (3)** *Prerequisite: ENG 300 or equivalent, with grade of "C" or higher.* In depth exploration of researching grant opportunities, writing and submitting grant proposals, administering grants and developing evaluation plans for collecting, analyzing and reporting data.

**PSY 480. PHYSIOLOGICAL PSYCHOLOGY. (3)** *Prerequisites: PSY 100, and junior standing or permission of the instructor.* Study of physiological mechanisms underlying behavior with an emphasis on current research on neurological, biochemical, and sensory mechanisms as they influence behavior.

**PSY 483. EVOLUTIONARY PSYCHOLOGY. (3)** *Prerequisites: PSY 100 and junior standing or permission of the instructor.* A survey of the research methods and core concepts of evolutionary psychology as they apply to human adaptive problems, including problems of survival, sex and mating, parenting and kinship, and aggression.

**PSY 485. PSYCHOLOGY OF RELIGION. (3)** *Prerequisites: Nine hours of psychology, including PSY 100, and junior standing; or permission of the instructor. PSY 210, 301, and 450 are preferred but not essential.* Classical theories and current research in the psychology of religion.

**PSY 490. RESEARCH, READINGS OR SPECIAL PROJECTS IN PSYCHOLOGY. (1-3)** *Prerequisites: PSY 100, junior standing, and permission of the faculty project supervisor.* Advanced students will conduct research and/or readings or projects concerning issues in psychology under the direction of faculty members. The course may be repeated. Only three hours will count within the first 37 hours of an undergraduate psychology major.

**PSY 495. HISTORY AND SYSTEMS OF PSYCHOLOGY. (3)** *Prerequisites: Nine hours in psychology, including PSY 100, and junior standing or permission of the instructor.* Overview of the main historical systems of psychology: introspectionist, functionalist, purposive, psychoanalytic, behaviorist, gestalt, existentialistic, and humanistic. Emphasizes the recent history of psychology and the identification of important systematic trends in contemporary writings in psychology and their underlying assumptions.

**PSY 499. SENIOR SEMINAR IN PSYCHOLOGY. (3)** *Prerequisites: 12 hours in psychology, including PSY 100, and senior level classification.* Seminar in which major concepts and issues in psychology are considered. Directed reading, guest lectures, field trips, and/or oral reports by students are utilized.

### RE – REAL ESTATE DEPARTMENT OF PROFESSIONAL STUDIES

**RE 170C. ESSENTIALS OF REAL ESTATE. (3)** *This course is a prerequisite to ALL 100 and 200 level Real Estate courses.* A course designed to introduce the student to the economic, social, environmental, governmental and legal setting of real estate in the United States. The unique aspects of real estate as a commodity, an investment medium, and a provider of shelter are discussed. The course explores the many career areas in the real estate industry as well as the informational needs of the homeowner.

**RE 171C. REAL ESTATE BROKERAGE OPERATION. (3)** *Prerequisite: RE 170C.* A course designed to teach the theory and mechanics of real estate brokerage operations. The preparation of the many contracts used in real property transactions is covered. Proficiency is developed in preparing and executing closing statements, applying the fundamentals of advertising and salesmanship to real estate, and understanding the ethical responsibilities of market participants.

**RE 172C. REAL ESTATE MARKETING. (3)** *Prerequisite: RE 170C.* Both the theory and practices of real estate market analysis are covered. Market trends and opportunities are studied within the context of the legal, political, physical, aesthetic and ethical constraints and alternatives faced. A variety of approaches are studied including land use, cost benefits, economic base, input, output, compatibility, highest and best use, and property productivity studies.

**RE 272C. REAL ESTATE FINANCE. (3)** *Prerequisite: RE 170C.* This course examines the various methods of financing real estate transactions from the point of view of lenders, developers, builders, speculators and owners. The institutional structure within which they operate as well as the decision processes of these parties as they choose the form of business entity and negotiate terms and conditions in order to achieve yield objectives within the constraints of acceptable risk levels are studied.

**RE 273C. REAL ESTATE LAW. (3)** *Prerequisite: RE 170C.* Examines the legal aspects of the real estate business, including brokerage, legal real estate instruments, contracts, and obligations.

**RE 274C. REAL ESTATE APPRAISALS. (3)** *Prerequisite: RE 170C.* This course is designed to introduce the student to the theory and practice of real property valuation. Students will be required to complete a demonstration appraisal report on a residential property. Basic concepts in income capitalization are also studied.

**RE 275C. PROPERTY MANAGEMENT. (3)** *Prerequisites: RE 170C and 172C.* The theory and techniques of real estate resource utilization. Specific applications to various types of property are presented. Topics such as tenant selection, maintenance, landlord-tenant relations, credit and collections, and lease negotiation techniques are included.

**RE 276C. REAL ESTATE INVESTMENT ANALYSIS AND MANAGEMENT. (3)** *Prerequisites: RE 170C, 172C, and 272C.* Application of investment principles and analytical techniques to real property. This course concentrates upon the determination of the financial feasibility of realty investments and the effects of financing, income taxes, and entity selection upon investment profitability. Concepts of individual and corporate portfolio management are included.

**RE 278C. INTERNSHIP-REAL ESTATE. (3)** *Prerequisite: Consent of department.* A structured internship to provide the advanced student with a practical working learning experience.

**RE 280C. ADVANCED REAL ESTATE APPRAISAL. (3)** *Prerequisites: RE 170C and 274C.* Principles of income property valuation and analysis of the equity position in real estate investment. Cash-flow analysis, mortgage-equity analysis, the impact of debt restructuring or refinancing, and property sale on value are studied.

**RE 281C. LAND DEVELOPMENT PROCESS. (3)** *Prerequisites: RE 170C, 172C, 272C and 276C.* The development process within the constraints imposed at various levels of government is viewed. The student is taken through the process from idea to post design evaluation. Elements of cost effective and creative land use, design standards, building arrangements, parking and street design are studied.

### REC / REC N – RECREATION DEPARTMENT OF KINESIOLOGY, RECREATION AND SPORT (REC) DEPARTMENT OF LIBERAL ARTS AND SCIENCES (REC N)

**REC 200 / REC N 200C. INTRODUCTION TO RECREATION. (3)** Introduces the student to recreation, parks and leisure history, philosophical concepts, and trends with attention to recreation sectors and employment opportunities. [GEN ED C]

**REC 220. INTRODUCTION TO NONPROFIT ORGANIZATIONS. (3)** Survey of nonprofit organizations emphasizing: history, ethics, personnel and volunteer management, human development, program development, risk management, customer service, and career development.

**REC 222. RECREATION ACTIVITY FACILITATION. (3)** Materials and techniques for planning, implementing, leading and evaluating recreation activities for groups of various sizes, ages and abilities in a variety of social recreation and leisure settings.

**REC 235. OUTDOOR RECREATION ACTIVITIES. (3)** To acquaint the student with basic outdoor recreation activities and related environmental practices. A variety of outdoor experiences are conducted in classroom and laboratory settings. Environmental values and impact considerations of outdoor experiences are emphasized throughout the course.

**REC 302. RECREATION LEADERSHIP. (3)** Leadership in recreation with emphasis placed on history, theory, decision-making, group management, communication and motivation. Course will facilitate leadership experiences.



**REC 304. TECHNOLOGY IN EVALUATION. (3)** Utilization of technology and computer software to assist with creating instruments, analyzing data, and reporting results from recreation needs assessments and program evaluation.

**REC 306. RECREATION PROGRAM PLANNING. (3)** Methodologies, skills and materials needed for designing, planning, implementing and evaluation of recreation programs for diverse populations in multiple settings. Includes the application of concepts and theories and an exploration of recreation trends.

**REC 320. RECREATION SEMINAR. (3)** *Prerequisite: REC 200.* Career development, current problems, trends and issues in recreation services.

**REC 326. CHURCH RECREATION. (3)** Recreation programming in religious organizations with emphasis placed on recreation delivery systems, event scheduling, interest and talent surveys, church facilities and church recreation committees.

**REC 328. INCLUSIVE RECREATION. (3)** Study of diverse leisure requirements of people with special needs. Attention given to outcome-based alternative programming, including special recreation and inclusion in mainstream recreation.

**REC 330. FOUNDATIONS OF OUTDOOR RECREATION. (3)** Outdoor recreation programming and resources including relevant history, philosophy, legislation, geographic factors, land use, standards, agencies and economics.

**REC 332. OUTDOOR EDUCATION. (3)** Multi-use natural resource management concepts, issues in resource management and the synthesis of concept and practical knowledge into real and simulated applications of land use and environmental problems related to the leisure service industry. Field trips required.

**REC 335. OUTDOOR SKILLS-LAND. (3)** Skill development in outdoor recreation land-based activities (camping, land navigation and backpacking) and related environmental practices. Overnight field trips required. Students are responsible for their own transportation to off-campus meetings. University transportation provided when possible.

**REC 337. OUTDOOR SKILLS- WATER. (3)** Skill development in outdoor recreation water-based activities (canoeing and kayaking) and related environmental practices. Focuses on outdoor leadership development. Overnight, multi-day camping required. Students are responsible for their own transportation to off-campus meetings. University transportation provided when possible.

**REC 402. FISCAL PRACTICES IN RECREATION. (3)** *Prerequisite: REC 304.* Financial principles and practices relevant in recreation settings. Topics include economic principles, financial management and organization, income sources, fundraising, pricing and budgeting. (Equivalent to SPM 402.)

**REC 404. RECREATION FACILITY MANAGEMENT. (3)** A practical orientation to management for a variety of recreation facilities. Equivalent to SPM 404.

**REC 406. RECREATION ADMINISTRATION. (3)** *Prerequisites: REC 200, 302, 304, 306.* Recreation administration with emphasis on personnel, planning, maintenance, legal issues and public relations.

**REC 420. COMMERCIAL RECREATION AND TOURISM. (3)** An overview of commercial recreation and tourism with particular attention to business principles, trends, and job opportunities.

**REC 422. CAMPUS RECREATION. (3)** Campus recreation administration with emphasis on facility management and program delivery formats including recreational sports, fitness, wellness, outdoor adventure and university center programs. Field experience is required.

**REC 424. CAMP AND CONFERENCE CENTER ADMINISTRATION. (3)** Organization and administration of camp and conference center programs and facilities including history, trends, staffing, client needs, finance, marketing, and legal issues.

**REC 426. FACILITY PLANNING AND DESIGN. (3)** Facility planning and design process with emphasis on the unique features of many different areas and types of facilities. Field experiences required. Students are responsible for their own transportation to off campus meetings. University transportation provided when possible.

**REC 428. COMMUNITY CENTERS AND PLAYGROUNDS. (3)** An intensive investigation of playground and community center operations.

**REC 430. RECREATION RESOURCE MANAGEMENT. (3)** Multi-use natural resource management concepts, issues in resource management and the synthesis of concepts, and practical knowledge into real and simulated applications of land use and environmental problems related to the leisure service industry. Field trips required. Students are responsible for their own transportation to off-campus meetings. University transportation provided when possible.

**REC 434. ENVIRONMENTAL INTERPRETATION. (3)** Environmental interpretation in leisure and educational settings. Includes interpretive design of exhibits and facilities. Emphasizes the development of presentation and program skills.

**REC 435. OUTDOOR EXPEDITION PLANNING. (3)** *Prerequisites: REC 335 and 337 or instructor's permission. May be corequisite.* Principles and techniques for planning, designing, implementing and evaluating extended outdoor expedition programs. Students will need to provide transportation for off-campus field-based instruction. Overnight field trips required. Students are responsible for their own transportation to off-campus meetings. University transportation provided when possible.

**REC 437. OUTDOOR LEADERSHIP EXPEDITION. (3)** *Prerequisites: REC 335, 337, 435 or instructor's permission. May be co-requisite.* Outdoor Leadership capstone course involving a back country expedition, leadership development and teaching techniques. Successful students will receive the Wilderness Education Association Outdoor Leader Certification. Overnight extended field trips required. Students are responsible for their own transportation to off-campus meetings. University transportation provided when possible. (course fee)

**REC 439. CHALLENGE COURSE FACILITATION. (3)** *Prerequisite: Junior standing or instructor's permission.* Understanding and applying experiential education theory in individual and group settings. Focus is on designing and facilitating safe and effective low and high challenge course experiences that incorporate personal growth, critical reflection, and skills in problem-solving, decision-making, and teambuilding. Recommended industry standards are followed. Field experience required. Students are responsible for their own transportation to off campus meetings. (course fee)

**REC 460. GRANT WRITING FOR NONPROFIT ORGANIZATIONS. (3)** *Prerequisite: ENG 300 or appropriate equivalent.* Thorough investigation of the grant writing process and the application of related skills. Includes how to research, identify, plan, organize, write and submit grants.

**REC 482. RECREATION WORKSHOP. (1-3)** A study of special areas relating to the recreational profession. May be experimental in nature or may follow a traditional class format. Field experiences and/or study at extended campus locations are usually required.

**REC 484. ADVANCED STUDIES IN RECREATION. (3)** *Prerequisite: Permission of instructor.* Specific and detailed analysis of issues in recreation. Incorporates individualized instruction between student and faculty.

**REC 490. INTERNSHIP IN RECREATION. (3-12)** *Prerequisite: REC 402, 404, 406, and permission of instructor.* Experience in recreation planning, leadership, supervision, and program evaluation through work in recreation, park, and other leisure oriented settings. This in-service experience is supervised and controlled by the University faculty members and personnel from area recreation agencies.

**REC 493. RECREATION PRACTICUM. (3)** *Prerequisite: Junior or senior standing and instructor permission.* Cooperative field experiences in approved recreation settings where students obtain professional administrative and/or programming experience with agency and faculty supervision. This course may require off-campus travel. Repeatable up to 6 hours of credit.

**REC 494. AMERICAN HUMANICS MANAGEMENT INSTITUTE. (1)** *Prerequisites: REC 220 and instructor's permission.* Focuses on developing nonprofit leaders. Several nonprofit workshops, agency simulations and a career fair facilitate networking with students and nonprofit executives. This course requires off-campus travel to the Management Institute.

**REC 496. NONPROFIT INTERNSHIP. (3-6)** *Prerequisites: REC 220, MGT 333, and instructor's permission.* A cooperative field experience in an approved nonprofit setting where the student obtains pre-professional administrative and/or programming experience with agency and faculty supervision. This course requires off-campus travel.

RELS / RLST – RELIGIOUS STUDIES  
DEPARTMENT OF PHILOSOPHY AND RELIGION (RELS)  
DEPARTMENT OF LIBERAL ARTS AND SCIENCES (RLST)

**RELS 100 / RLST 100C. THE NEW TESTAMENT. (3)** An introduction to the historical, literary, and cultural approaches to the New Testament with a view toward understanding and interpretation. [GEN ED B-II]

**RELS 101 / RLST 101C. THE OLD TESTAMENT/ HEBREW SCRIPTURES. (3)** An introduction to the historical, literary, and cultural approaches to the Hebrew Bible (Old Testament) with a view toward understanding and interpretation. [GEN ED B-II]

## Course Descriptions

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**RELS 102 / RLST 102C. INTRODUCTION TO RELIGIOUS STUDIES. (3)** An introduction to the study of religion from Western and non-Western cultures. The course surveys and critiques definitions of religion and examines topics such as the historical, social, psychological, and ethical implications of a number of religious traditions. [GEN ED B-II]

**RELS 103. RELIGIONS OF ASIA. (3)** Introduction to the history, doctrines, and practices of the major religions of India, China and Japan. [GEN ED E]

**RELS 202. RACIAL JUSTICE. (3)** An examination of (1) the major perspective that came together to form the civil rights movement of the 1950's and 1960's; (2) the accomplishments and failures of that movement; and (3) the issues of racial justice that remain today. [GEN ED C]

**RELS 300. THE LIFE OF JESUS. (3)** An investigation of the nature, content, and major interpretations of the sources for the life and teachings of Jesus.

**RELS 301. LIFE AND TEACHINGS OF PAUL. (3)** A study of the life and thought of Paul in its historical and cultural setting; concentration on the principal themes in Pauline thought which have been influential in Christian tradition.

**RELS 302. BUDDHIST RELIGIOUS TRADITIONS. (3)** Introduction to the history, fundamental doctrines, and practices of the three main Buddhist traditions (Theravada, Mahayana, Vajrayana) in their global contexts. [GEN ED E]

**RELS 303. HINDU RELIGIOUS TRADITIONS. (3)** A study of the central beliefs, ethical practices, symbols, and institutions of the Hindu traditions, examining patterns of their unity, diversity, and encounter with modernity. [GEN ED E]

**RELS 304. JUDAIC RELIGIOUS TRADITIONS. (3)]** A survey of Jewish religious traditions, Jewish history and literature from the Greco-Roman period to the present. [GEN ED E]

**RELS 305. CHRISTIAN RELIGIOUS TRADITIONS. (3)** A survey of the doctrines, ethical codes, rituals, and institutions of the three main Christian traditions: Orthodoxy, Roman Catholicism, and Protestantism. [GEN ED B-II]

**RELS 306. ISLAMIC RELIGIOUS TRADITIONS. (3)** Terminology, history, social institutions, beliefs, rituals, ethical systems, and world views associated with the religious tradition of Islam. Examination of the West's views of Islam and Islamic views of the West. [GEN ED E]

**RELS 307. NATIVE AMERICAN RELIGIOUS TRADITIONS. (3)** A survey of North American Indian religious traditions from European contact to present, including beliefs, practices, and cultural institutions. [GEN ED E]

**RELS 308. EAST ASIAN RELIGIOUS TRADITIONS. (3)** Introduction to the history, fundamental doctrines, and practices of the three classical East Asian traditions: Confucianism, Taoism, and Buddhism. Attention will be directed toward how the three traditions become interpreted in China, Korea, and Japan. [GEN ED E]

**RELS 311. THE QUR'AN. (3)** An introduction to the Qur'an and its contemporary and historical roles in the lives of Muslims as well as in their societies and cultures.

**RELS 312. ANCIENT NEAR EAST TEXTS. (3)** The course surveys a broad number of ancient Mesopotamian and other Western Asian genres of literature which shed light upon the literary remains of Israel found in the Hebrew Scriptures. Included are cosmologies, cosmogonies, flood narratives, prophecies, historical annals which deal with the kings of Israel and Judah, wisdom literature, theodicy, omen texts and others.

**RELS 315. PHILOSOPHY OF RELIGION. (3)** *Prerequisite: One course in philosophy or religious studies.* A systematic study of such problems as the nature and existence of God, the relation of faith and reason, human nature and destiny, immortality, evil, and the problem of religious language. Equivalent to PHIL 315.

**RELS 320. RELIGIONS OF THE MIDDLE EAST. (3)** A thematic study of Judaism, Eastern Christianity, and Islam as these religions are practiced in Middle Eastern societies today. There is a focus on the concept of sacred place and on the ways in which this concept links the ancient past of the tradition with its modern expression. [GEN ED E]

**RELS 323. SOCIAL ETHICS. (3)** *Prerequisite: One course in Religious Studies or Philosophy or junior status.* Perspectives and issues involved in the public pursuit of justice in a religiously and philosophically diverse society. One short field trip. Equivalent to PHIL 323: Social Ethics. [GEN ED B-II]

**RELS 324. CHRISTIANITY IN AFRICA. (3)** The development of Christianity in Africa from the first century to the present, with special emphasis on the post-colonial period. [GEN ED E]

**RELS 325. RELIGION IN CONTEMPORARY AMERICA. (3)** A study of the ways religion is understood and expressed by varying segments of American society. [GEN ED C]

**RELS 326. SECOND TEMPLE JUDAISM. (3)** Introduction to the history, literature, and religion of the Jewish people from the beginning of the Persian period (mid-6th c. B.C.) to the Bar Kokhba Revolt (132-135 A.D.)

**RELS 330. RELIGION IN THE AMERICAN SOUTH. (3)** Survey of the religious cultures of the American South from the colonial period to the present. The course will look at a variety of religious expressions in institutional life, thought, literature, and music.

**RELS 333. WOMEN AND RELIGION. (3)** The examination of primary and secondary sources on women's contributions to western and non-western religious thought.

**RELS 382. BIBLICAL LANGUAGES I: INTRODUCTORY HEBREW. (3)** A study of the vocabulary, grammar, and syntax of Biblical Hebrew. May be taken either as a foreign language course or as a RELS elective. Equivalent to BLNG 382. [GEN ED A-II]

**RELS 383. BIBLICAL LANGUAGES II: INTERMEDIATE HEBREW. (3)** *Prerequisite: RELS 382.* Further development of an understanding of the fundamentals of the Hebrew language with special attention to the reading of selected portions of the Old Testament. May be taken either as a foreign language course or as a RELS elective. Equivalent to BLNG 383. [GEN ED A-II]

**RELS 384. BIBLICAL LANGUAGES III: INTRODUCTORY GREEK. (3)** A study of the vocabulary, grammar, and syntax of Koine Greek. May be taken either as a foreign language course or as a RELS elective. Equivalent to BLNG 384. [GEN ED A-II]

**RELS 385. BIBLICAL LANGUAGES IV: INTERMEDIATE GREEK. (3)** *Prerequisite: RELS 384.* Further development of an understanding of Koine Greek with readings in the New Testament and Hellenistic literature. May be taken either as a foreign language course or as a RELS elective. Equivalent to BLNG 385. [GEN ED A-II]

**RELS 390. INTRODUCTORY PALI I. (3)** A study of the grammar, syntax, and vocabulary of the Pali language with a stress on reading primary textual material from a variety of Pali sources. May be taken as a RELS elective.

**RELS 391. PALI II. (3)** Further study of the grammar, syntax, and vocabulary of the Pali language with a stress on reading a wide variety of canonical, commentarial, and post-canonical texts. May be taken as a RELS elective.

**RELS 399. STUDY ABROAD. (3)** Supervised study of religion in a study abroad program. May be repeated for different study abroad locations.

**RELS 401. RELIGIOUS STUDIES SEMINAR. (3)** *Prerequisite: One course in religious studies or permission of instructor.* A seminar with rotating topics designed primarily for advanced students in religious studies. May be repeated for different topics.

**RELS 403. POSTCOLONIAL CHRISTIANITY. (3)** *Prerequisite: One RELS course or permission of the instructor.* The study of postcolonial interpretations of Christianity in Africa, Asia and Latin America.

**RELS 408. RELIGION AND ECOLOGY. (3)** *Prerequisite: One course in Religious Studies or permission of instructor.* The study of different religious perspectives on ecology.

**RELS 426. THE DEAD SEA SCROLLS. (3)** *Prerequisite: One course in Religious Studies.* Introduction to the discovery, authentication, contents, and main ideas of the Dead Sea Scrolls; the community that produced them; the controversies that have surrounded them; and the archaeology of the nearby ruins.

**RELS 430. CHRISTIANITY TO 1517. (3)** *Prerequisite: One course in religious studies or permission of instructor.* An investigation of the development of Christian thought and institutions from the first century of the Church until the Reformation.

**RELS 431. CHRISTIANITY FROM 1517 TO THE PRESENT. (3)** *Prerequisites: One course in religious studies or permission of instructor.* An investigation of the development of Christian thought and institutions from the beginning of the Reformation to the present.

**RELS 496. SENIOR SEMINAR. (3)** *Prerequisites: Senior standing and major in the department or consent of the instructor.* A capstone course designed for senior religious studies majors. Students will complete projects that demonstrate their research, writing, and analytical skills. Content areas of the seminar will vary by semester and instructor.

**RELS 499. RESEARCH IN RELIGIOUS STUDIES. (3)** *Prerequisite: Open only to religion majors with a 3.0 grade point average in their senior year.* Directed study and research in one area of religious studies.

**RUSS – RUSSIAN**  
 DEPARTMENT OF MODERN LANGUAGES

**RUSS 101. ELEMENTARY RUSSIAN I. (3)** A beginning course designed to teach the four language skills of understanding, speaking, reading and writing, with emphasis on understanding and speaking. (course fee) [GEN ED A-II]

**RUSS 102. ELEMENTARY RUSSIAN II. (3)** *Prerequisite:* RUSS 101 or one year of high school Russian. Further development of the four language skills. (course fee) [GEN ED A-II]

**SBM – SMALL BUSINESS MANAGEMENT**  
 DEPARTMENT OF PROFESSIONAL STUDIES

**SBM 235C. COMPUTERIZED ACCOUNTING. (3)** *Prerequisites:* BUS 110C. A course designed to focus on computerizing a business. Includes general ledger, accounts payable, accounts receivable, invoicing, inventory control, ordering, payroll, and financial statements.

**SEC – SECONDARY EDUCATION**  
 SCHOOL OF TEACHER EDUCATION

**SEC 351. TEACHING STRATEGIES FOR SECONDARY SCHOOLS. (3)** *Prerequisites:* EDU 250, PSY 310. Designed to develop a working knowledge of planning, implementation of instruction, assessment, and classroom climate for a student population. Field experiences in public schools are required for this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**SEC 352. PLANNING FOR STUDENT DIVERSITY. (3)** *Prerequisites:* EDU 250, PSY 310 (*SEC 351 pre- or corequisite*). Designed to apply students' knowledge of teaching strategies and assessment in diverse learning environments. Field experiences in public schools are required. Students are responsible for arranging their own transportation to designated or assigned sites.

**SEC 453. MANAGEMENT OF INSTRUCTION. (3)** *Prerequisites:* Must be admitted to the Teacher Education Program. EDU 250, PSY 310, (*SEC 351, SEC 352 or EXED 330*) with a grade of C or higher. *Prerequisite or corequisite:* Methods course. Designed to expand and refine the abilities of preservice teachers to create and maintain a positive learning environment, and to implement and manage instruction for diverse student populations. Field experiences in public schools are required. Students are responsible for their own transportation to designated or assigned sites.

**SEC 472. TEACHING ART. (3)** *Prerequisites:* EDU 250, SEC 351, SEC 352 and PSY 310. Develops skills, procedures, and strategies for teaching art in the secondary school. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**SEC 473. TEACHING BUSINESS EDUCATION. (3)** *Prerequisites:* Senior standing and instructor permission. *Corequisite:* BE 486. Develops the skills, procedures, and strategies for teaching business and marketing education in the middle and secondary school. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**SEC 474. TEACHING FOREIGN LANGUAGE. (3)** *Prerequisites:* EDU 250, EXED 330, SEC 351, and PSY 310. *Recommended Corequisite:* SEC 453. Develops skills, procedures, and strategies for teaching foreign language in middle and secondary schools. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites. Equivalent to MLNG 474.

**SEC 475. TEACHING LANGUAGE ARTS. (3)** *Prerequisites:* EDU 250, SEC 351, SEC 352, LTCY 444, PSY 310, ENG 304 and ENG 410. *Recommended Corequisite:* SEC 453. Develops skills, curriculum, and strategies for teaching English in secondary schools. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**SEC 477. TEACHING MATHEMATICS. (3)** *Prerequisites:* EDU 250, SEC 351, SEC 352, and PSY 310. *Recommended corequisite:* SEC 453. Develops the skills, procedures, and strategies for teaching mathematics in the secondary school. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**SEC 478. TEACHING PHYSICAL EDUCATION. (3)** *Prerequisites:* EDU 250, PSY 310, EXED 330, and SEC 351. *Recommended corequisite:* SEC 453. Develops the skills, procedures, and strategies for teaching physical education in the secondary school. Field experiences in public schools and/or other appropriate

settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**SEC 479. TEACHING SCIENCE. (3)** *Prerequisites:* EDU 250, SEC 351, SEC 352, and PSY 310. *Recommended corequisite:* SEC 453. Develops the skills, procedures, and strategies for teaching science in secondary schools. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**SEC 481. TEACHING SOCIAL STUDIES. (3)** *Prerequisites:* EDU 250, SEC 351, SEC 352 and PSY 310. *Recommended corequisite:* SEC 453. Develops skills, procedures, and strategies for teaching social studies in secondary schools. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**SEC 483. TEACHING HEALTH. (3)** *Prerequisites:* EDU 250, PSY 310, EXED 330, and SEC 351. *Recommended corequisite:* SEC 453. Develops skills, procedures, and strategies for teaching health in the secondary school. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**SEC 490. STUDENT TEACHING. (5-10)** *Prerequisites:* Admission to Teacher Education and admission to student teaching. *Corequisite:* EDU 489. Supervised assignment in approved school setting. Must complete a minimum of sixteen weeks in one or two placements depending on certification requirements. Students follow the academic calendar of the school district in which they are placed and are responsible for providing their own transportation to assigned site(s). (course fee)

**SEC 491. LECTURE IN LIEU OF STUDENT TEACHING. (5)** Seminar in current issues in teaching for certified teachers seeking additional endorsement. Director of student teaching approval required.

**SFTY – SAFETY**  
 DEPARTMENT OF PUBLIC HEALTH

**SFTY 171. SAFETY AND FIRST AID. (1)** The course is designed to prepare students to provide immediate and temporary care in emergency situations involving accidents or sudden illness. The symptoms and appropriate first aid for shock, wounds, heart problems, fractures, heat and cold injuries, poisons, and proper methods of transportation will be covered. The course is applicable to all students, especially those pursuing a teaching career where they will be responsible for other students entrusted to their supervision and care. (course fee) [GEN ED F]

**SFTY 270. GENERAL SAFETY. (3)** Introduction to the history of safety in America. Examines steps involved in analyzing the causes and prevention of accidents. Emphasizes programs designed to educate the student in general safety concepts and principles, and an overview of statistical analysis, theories, and models used in hazard pre-planning and post-incident analysis and/or mitigation. Major topics include traffic, home, recreational, fire, and occupational safety.

**SFTY 271. EMERGENCY CARE AND TRANSPORTATION. (6)** Students will learn how to evaluate, provide emergency care, and properly move and transport ill or injured people utilizing equipment available in an ambulance. Successful completion of this course and a skills evaluation leads to certification as an Emergency Medical Technician (EMT). (course fee)

**SFTY 370. DRIVER EDUCATION AND TRAFFIC SAFETY I. (3)** *Prerequisite:* SFTY 270. Critical analysis of traffic accidents, attitude factors, essential knowledge of automobile operation and traffic laws and regulations. Includes laboratory experience for developing driving skills.

**SFTY 470. DRIVER EDUCATION AND TRAFFIC SAFETY II. (3)** *Prerequisite:* SFTY 370 or equivalent. This course deals with the management of the classroom and laboratory phases of the high school driver and traffic safety education program. Simulation and range programs are given special emphasis.

**SFTY 471. ADVANCED STUDIES IN DRIVER EDUCATION. (3)** *Prerequisite:* SFTY 470 or equivalent. This course deals with the advanced instructional technology needed to meet the needs of the driver and traffic safety education programs. Major emphasis will be placed on motorcycle safety education and the behavioral approach to traffic safety education.



## Course Descriptions

### SM – SYSTEMS MANAGEMENT

#### DEPARTMENT OF COMPUTER INFORMATION SYSTEMS

**SM 300. SYSTEMS MANAGEMENT AND PRACTICE. (3)** A foundational study of systems management and technology from theoretical, managerial and practical perspectives. (course fee)

**SM 346. BUSINESS RESOURCE DEVELOPMENT. (3)** An introduction to the principles and concepts of business resources development and management. Emphasis on developing strategic advantage through deployment of appropriate systems. (course fee)

**SM 347. INTRODUCTORY BUSINESS TELECOMMUNICATIONS. (3)** Introduction to telecommunications, network, and related system issues and applications in an organizational setting. (course fee)

**SM 348. BUSINESS SYSTEMS ARCHITECTURES. (3)** An introduction to the various system architectures common to modern business systems. (course fee)

**SM 443. BUSINESS INTELLIGENCE. (3)** Examination of tools and systems used to support strategic planning and decision making. (course fee)

**SM 444. INFORMATION SYSTEMS MANAGEMENT. (3)** Management of the organization's data resources and information flow, including: project management, systems planning, control and operations. (course fee)

**SM 446. SECURITY, RISK, AND THREAT MANAGEMENT. (3)** Examination of security and risk management in organizational systems. Cost-benefit issues, access, availability and efficiency will be analyzed. (course fee)

**SM 447. ELECTRONIC COMMERCE SYSTEMS. (3)** Examination of electronic commerce systems, processes and technologies, and how such systems may be used to develop competitive advantage. (course fee)

### SMED – SCIENCE AND MATHEMATICS EDUCATION

#### SCHOOL OF TEACHER EDUCATION

**SMED 101. STEP 1: INTRODUCTION TO INQUIRY-BASED APPROACHES TO TEACHING. (1-1.5)** Introduction to theory and practice necessary to design and deliver high quality inquiry-based math and science instruction. Students explore and practice the guided inquiry process, create lesson plans and implement them during visits to elementary classrooms. Fieldwork required; students are responsible for arranging their own transportation to sites.

**SMED 102. STEP 2: INTRODUCTION TO INQUIRY-BASED LESSON DESIGN. (2-3)** Further exploration of inquiry-based learning experiences, developing skills designing, teaching, analyzing, and assessing inquiry-based math and science lessons. Students design lesson plans and implement them during visits to middle school classrooms. Fieldwork required; students are responsible for arranging their own transportation to sites.

**SMED 210. KNOWING AND LEARNING IN MATHEMATICS AND SCIENCE. (3)** *Prerequisite: SMED 101.* Introduction to theories and principles of cognition and learning with emphasis on knowing and learning in math and science. Introduction to research on learning, memory, individual development, motivation and intelligence. Applications of learning theory will be explicitly tied to design of lesson plans, instruction and assessment.

**SMED 301. DESIGNING AND TEACHING INQUIRY-BASED MATHEMATICS AND SCIENCE UNITS. (3)** *Prerequisites: Sophomore standing and 9 hours of math/science coursework.* Develops students' skills in designing, teaching, analyzing, and assessing inquiry-based math and science lessons and units within multiple and diverse field experiences. Fieldwork required; students are responsible for arranging their own transportation to sites.

**SMED 320. CLASSROOM INTERACTIONS. (3)** *Prerequisite: SMED 210.* Designed to expand students' abilities to understand how learning theories are applied in instructional settings as students develop, implement and evaluate activities and strategies for teaching diverse students equitably. Fieldwork required; students are responsible for arranging their own transportation to sites.

**SMED 340. PERSPECTIVES ON MATHEMATICS AND SCIENCE. (3)** *Prerequisite: SMED 210.* Introduction to the historical, social, and philosophical implications of math and science through investigations of pivotal experiments and findings. Includes integrated laboratory experiences that replicate significant discoveries.

**SMED 360. RESEARCH METHODS FOR MATH AND SCIENCE TEACHERS. (3)** *Prerequisite: SMED 210.* Laboratory-based introduction to the tools and techniques used by scientists and mathematicians to further an understanding of the natural world and application of this knowledge to math and science education. Students will design and carry out laboratory investigations, and present written and oral reports of results.

**SMED 470. PROJECT-BASED INSTRUCTION. (3)** *Prerequisite: SMED 320.* Methods, techniques, and technologies used to implement and assess problem-based investigations in math and science classrooms. Fieldwork required; students are responsible for arranging their own transportation to sites.

**SMED 489. SMED STUDENT TEACHING SEMINAR. (3)** *Prerequisite: Approved for admission to student teaching. Co-requisite: MGE 490 or SEC 490.* Provides a bridge between the theory and practice of math and science teaching. Methods, techniques, technologies and issues pertinent to math and science instruction in middle grade and secondary classrooms. Field experiences in public schools and/or other appropriate settings away from campus are required. Pre-Service Teachers are responsible for their own transportation to designated or assigned sites.

### SOCL / SOC – SOCIOLOGY

#### DEPARTMENT OF SOCIOLOGY (SOCL)

#### DEPARTMENT OF LIBERAL ARTS AND SCIENCES (SOC)

**SOCL 100 / SOC 100C. INTRODUCTORY SOCIOLOGY. (3)** Introduction to the basic concepts of society and culture, group behavior, population, class, minorities, community, social institutions and social changes. [GEN ED C]

**SOCL 210 / SOC 210C. INTERACTION: SELF IN SOCIETY. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Study of the individual in social context. Emphasis is on group, social, and cultural factors and their consequences for self-development, role perception, role performance and value orientation. [GEN ED C]

**SOCL 220 / SOC 220C. MARRIAGE AND FAMILY. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Analysis of the family institution, its structure and function and the dynamics of social change in family interaction and organization. [GEN ED C]

**SOCL 231. SURVEY OF CRIMINAL JUSTICE. (3)** Survey of criminal justice systems, including police, courts, and corrections.

**SOCL 232. INTRODUCTION TO LAW ENFORCEMENT. (3)** An introduction to policing—including the history of law enforcement, the police and the criminal justice system, principles of law enforcement, and professional issues in law enforcement.

**SOCL 233. ALTERNATIVES TO CONFINEMENT. (3)** An examination of community treatment options in the correctional process with emphasis on contemporary probation and parole practices for adult offenders. Diversion, halfway houses, drug and alcohol treatment, restitution, house arrest, and community service and new community-based programs for women will be discussed.

**SOCL 234. SECURITY AND CRIME INVESTIGATION (3).** *Prerequisite: SOCL 100 or consent of instructor.* Current issues faced by safety responders, primarily focusing on homeland security and criminal investigations.

**SOCL 240 / SOC 240C. CONTEMPORARY SOCIAL PROBLEMS. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Survey of social disorganization and public descensus in contemporary societies. Emphasis is placed on social change, conflicts in cultural values and the impact of technology. Field trips required in some sections.

**SOCL 245. SOCIOLOGY OF POPULAR CULTURE. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Investigation of various forms of popular culture, including television, film, music, fashion, sports, computers, and language from a sociological perspective.

**SOCL 260. RACE AND ETHNIC RELATIONS. (3)** *Prerequisite: SOCL 100.* Designed to acquaint students with the historical and contemporary experiences of racial and ethnic groups in America. Explores social class and gender variations in the experiences of these various groups.

**SOCL 300. USING STATISTICS IN SOCIOLOGY. (3)** *Prerequisite: MATH 109 or 116 or equivalent.* Techniques of statistical description and elementary statistical inference as applied to social data.

**SOCL 302. STRATEGIES OF SOCIAL RESEARCH. (3)** *Prerequisite: SOCL 300 or other introductory statistics course.* Survey design and analysis, scaling techniques, methods of analyzing data with emphasis on hypothesis-testing, statistical inference and tests of relationship.

**SOCL 304. SOCIOLOGICAL THEORY: PERSPECTIVES ON SOCIETY. (3)** *Prerequisite: Six hours of sociology.* Study of the leading developments of schools of sociological theory from Durkheim to the present.

**SOCL 309. SOCIAL DEVIANCE. (3)** Examines how social groups define certain behaviors, beliefs, and conditions as normative violations and the resulting stigmatization and sanctioning of norm violators. Topics include conceptual and theoretical issues, physical deviance, sexuality, and alcohol/drug use.

**SOCL 310. BEHAVIOR IN SMALL GROUPS. (3)** *Prerequisite: Six hours of sociology or consent of instructor.* The study of communication and interaction patterns within small groups, including analysis of power, status, cohesion, and leadership.

**SOCL 312. COLLECTIVE BEHAVIOR AND SOCIAL MOVEMENTS. (3)** *Prerequisite: Six hours of sociology.* Analysis of collective behavior and social movements, focusing on individual participation and social consequences.

**SOCL 322. RELIGION IN SOCIETY. (3)** *Prerequisite: Six hours of sociology or consent of instructor.* Study of the various forms and content of religious organizations and movements and the behavioral and attitudinal concomitants of religious affirmation.

**SOCL 324. SOCIOLOGY OF SPORT. (3)** *Prerequisite: SOCL 100 or consent of instructor.* An examination of the sociological perspective of sport as an institution. Particular emphasis is placed on the impact of sport on the individual, small groups, other institutions, and society.

**SOCL 330. CRIMINOLOGY. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Study of the personal, structural and ideological bases of law-violating behavior in American society.

**SOCL 332. JUVENILE DELINQUENCY. (3)** *Prerequisite: SOCL 100 or consent of instructor.* An examination of the socio-legal aspects of delinquency, including a critical analysis of trends and contemporary treatment modes. Field trips required.

**SOCL 342. AGING IN SOCIETY. (3)** *Prerequisite: SOCL 100 or consent of instructor.* An analysis of the elderly and their position in society. Attention is directed to aging as it relates to various social institutions and to the social aspects of aging in contemporary American society.

**SOCL 345. THE SOCIOLOGY OF POPULAR MUSIC. (3)** *Prerequisite: SOCL 100 or consent of instructor.* A sociological examination of contemporary music. Focus is on the social organization of popular music performance, production and consumption.

**SOCL 346. SPECIAL TOPICS. (3)** *Prerequisite: SOCL 100.* Significant sociological topics, issues, or developments in the discipline of sociology. May be repeated with different topic.

**SOCL 350. SOCIAL INEQUALITY. (3)** *Prerequisite: Six hours of sociology.* Analysis of how societies differentially distribute social rewards. Includes inequality, mobility and life styles in caste, class, and other systems.

**SOCL 352. TECHNOLOGY, WORK AND SOCIETY. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Analysis of technology's impact on work systems, relationships between work and society, and management-worker interaction in varied industrial settings.

**SOCL 353. SOCIOLOGY OF MODERN JAPAN. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Examination of social and cultural changes in contemporary Japanese society with particular focus on gender, race, and class in context of global capitalism. [GEN ED E]

**SOCL 355. SOCIOLOGY OF GENDER. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Examination of the social construction of women's and men's roles in society and of the concepts of masculinity and femininity.

**SOCL 359. SEXUALITY AND SOCIETY. (3)** Sociological examination of issues, debates, and research on pornography, prostitution, sexual orientation, and sex and the law.

**SOCL 360. THE COMMUNITY IN RURAL AND URBAN SETTINGS. (3)** *Prerequisite: Six hours of sociology.* Study of the structure and function of community life and the process of balancing community needs and resources.

**SOCL 362. SOCIAL INSTITUTIONS: RACE, CLASS, AND GENDER. (3)** *Prerequisite: Junior standing or consent of instructor.* The five primary institutions (family, religion, economy, education and government) as they affect and are affected by race, class, and gender in America. Explores interrelationships among those institutions and between various racial and other groups. [GEN ED E]

**SOCL 363. POPULATION AND SOCIETY. (3)** *Prerequisite: SOCL 100 or consent of the instructor.* Causes and consequences of the population explosion and other population problems in the United States and developing countries are examined. Emphasis is placed on the interrelationships of population variables (fertility, mortality and migration) and social, economic, political and ecological variables.

**SOCL 375. DIVERSITY IN AMERICAN SOCIETY. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Sociological analyses of ways societal institutions create and shape intergroup diversity. Focuses on the elements of social organization and their relationships to diversity. [GEN ED E]

**SOCL 376. INTERNATIONAL SOCIOLOGY. (3)** Survey of causes, effects, and implications of globalization on societies and individual lives. There will be optional field trips.

**SOCL 380. PENOLOGY. (3)** *Prerequisite: Undergraduate course in criminology or juvenile delinquency.* Survey of theories and forms of punishment, community-based corrections and prisons. Field trips to prisons required.

**SOCL 404. QUALITATIVE RESEARCH METHODS. (3)** *Prerequisites: Junior standing and 6 hours of sociology or permission of instructor.* A study of the methods and techniques used in qualitative sociological research. Topics include observational research, in-depth interviewing, hermeneutic content analysis and discourse analysis.

**SOCL 408. SURVEY APPLICATIONS. (3)** *Prerequisites: SOCL 300 and 302 or their equivalent and consent of instructor.* Course pass required. Students will be involved in the design, conduct, analysis, and dissemination of an actual social survey research project.

**SOCL 410. SOCIALIZATION: CHANGES THROUGH LIFE. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Study of the theories and research techniques in the area of socialization with summary of the findings dealing with changes over the life cycle.

**SOCL 420. POLITICAL SOCIOLOGY. (3)** *Prerequisites: Junior standing and 6 hours of sociology.* The study of political behavior within a sociological perspective, examining such concepts as social cohesion, legitimacy, political socialization, and power structures.

**SOCL 432. SOCIOLOGY OF CRIMINAL LAW. (3)** *Prerequisite: SOCL 330 or consent of instructor.* An examination of the sociological research and theory focusing on social structural factors affecting the creation of criminal codes, the enforcement of criminal law and the imposition of penal sanctions.

**SOCL 434. ORGANIZED CRIME. (3)** *Prerequisites: Junior standing and 6 hours of sociology or permission of instructor.* The study of both traditional and nontraditional organized crime from a sociological perspective.

**SOCL 435. FAMILY VIOLENCE. (3)** *Prerequisite: Six hours of sociology.* This course is designed to provide the student with a sociological perspective on family violence in the United States. Emphasis is placed on child abuse and wife abuse. Research, theory, laws, treatment, and prevention are analyzed.

**SOCL 438. VICTIMOLOGY. (3)** Survey of major theories and research in victimology. Topics include violent victimization, sexual assault, child abuse, and response of criminal justice system to victims.

**SOCL 439. INTERNSHIP IN CRIMINOLOGY. (3-6)** *Prerequisites: Eighty hours of completed college course work and a minimum of 15 hours toward the minor in Criminology or major in Sociology. Course pass required.* Practical experience in criminology or deviance in a supervised work situation with a cooperating agency.

**SOCL 440. MEDICAL SOCIOLOGY. (3)** *Prerequisite: SOCL 100 or consent of instructor.* A comprehensive introduction to sociological factors in disease etiology and illness behavior; the organization and operation of health delivery systems; and the social interaction between organization administrators, health professionals and semi-professionals, patients, and the public.

**SOCL 442. SOCIOLOGY RESEARCH PROJECT. (3)** Course pass required.

**SOCL 446. GENDER, CRIME, AND JUSTICE. (3)** *Prerequisite: Consent of the instructor.* Explores effects of gender shapes reactions toward victims, offenders, and professionals working within the criminal justice system.

**SOCL 450. OCCUPATIONS AND PROFESSIONS. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Analysis of the meaning of trends in occupational activities and careers through investigation of various occupations and professions.

**SOCL 451. WHITE-COLLAR CRIME. (3)** An overview of the definitions, history, nature and extent of white-collar crime as well as theories and explanations that address its causes, correlates, and efforts at control.

**SOCL 452. SOCIAL CHANGE. (3)** *Prerequisite: Nine hours of sociology or consent of instructor.* Examination of the nature and theories of social change and of the factors affecting it. Emphasis on the process of modernization and contemporary social changes.

**SOCL 460. URBAN SOCIOLOGY. (3)** *Prerequisite: Nine hours of sociology or consent of instructor.* The impact of city life on social actions, social relationships and social institutions. Emphasis is placed on the rise and significance of cities in America life with attention to modification of educational, political and religious institutions as well as housing, transportation and communication.

**SOCL 466. GENDER, FAMILY, AND SOCIETY. (3)** *Prerequisite: SOCL 100.* Sociological, historical and feminist examination of gender inequality in the context of the family. Issues examined include mate selection, single-parent families, paid work and families, gender and domestic work, ethnicity and family relations, social class and family relations, costs and rewards of parenting, divorce, battering.

## Course Descriptions

**SOCL 470. ENVIRONMENTAL SOCIOLOGY. (3)** *Prerequisite: ENG 300 and 3 credit hours of sociology, or consent of instructor.* Explores environmental thought within the sciences and the general public, including shifting worldviews, social movements, and social structural change associated with sustainability, and environmental justice, and the rights of nature. Students are responsible for arranging their own transportation for optional field trips.

**SOCL 489. SOCIOLOGY STUDY ABROAD. (1-6)** *Prerequisite: Consent of instructor.* Sociological and cultural study in international locations. May be repeated for credit. No more than six hours may be applied toward the major or minor.

**SOCL 494. COOPERATIVE EDUCATION IN SOCIOLOGY. (3-6)** *Prerequisites: Application for or enrollment in Cooperative Education plan, approval of departmental co-op faculty advisor, and development of a Learning Plan. Course pass required.* Practical experience in a supervised work situation.

**SOCL 495. DIRECTED STUDY. (1, 2 OR 3)** *Prerequisites: Junior standing and consent of department head. Course pass required.* Available to superior students who wish to conduct individual, intensive reading and research in a specific area of sociology in close cooperation with supervising faculty. Submission of such projects to student sections of regional professional meetings is encouraged.

**SOCL 496. DIRECTED STUDY. (1, 2 OR 3)** *Prerequisites: Junior standing and consent of department head. Course pass required.* Available to superior students who wish to conduct individual, intensive reading and research in a specific area of sociology in close cooperation with supervising faculty. Submission of such projects to student sections of regional professional meetings is encouraged.

**SOCL 499. SENIOR SEMINAR. (1)** *Prerequisite: Senior standing.* Integrates concepts, theories, research methods, and data analysis techniques learned during study of sociology. (Grading: Pass/Fail)

### SPAN / SPN- SPANISH DEPARTMENT OF MODERN LANGUAGES (SPAN) DEPARTMENT OF LIBERAL ARTS AND SCIENCES (SPN)

**SPAN 100. SPANISH LANGUAGE AND CULTURE ON-SITE. (1-3)** *Prerequisite: Permission of instructor.* An introduction to Spanish and Spanish-speaking culture in conjunction with study abroad for students with little or no previous language study. Does not fulfill the general education foreign language requirement. May be repeated for a total of 3 credits.

**SPAN 101 / SPN 101C. ELEMENTARY SPANISH I. (3)** A beginning course designed to develop skills in understanding, speaking, reading and writing and to provide cultural insights. (course fee) [GEN ED A-II]

**SPAN 102 / SPN 102C. ELEMENTARY SPANISH II. (3)** *Prerequisite: SPAN 101 or one year of high school Spanish.* Continuation of development of four skills and of cultural insights. (course fee) [GEN ED A-II]

**SPAN 105. INTRODUCTION TO HISPANIC CULTURE. (3)** Survey of the contemporary values of Spain and Latin America, with emphasis on values, behavioral characteristics, social and political structures, and achievements of the Spanish-speaking peoples. Taught in English; only taught abroad.

**SPAN 200. INTRODUCTION TO LATIN AMERICA. (3)** This course is a broad, interdisciplinary introduction to the study of Latin America, emphasizing its regions, peoples and cultures. Since this course is taught by various departments, see Latin American studies advisor for enrollment. Not for major or minor credit. [GEN ED E]

**SPAN 201 / SPN 201C. INTERMEDIATE SPANISH I. (3)** *Prerequisite: SPAN 102 or two years of high school Spanish.* A systematic review of grammar and development of reading skills. (course fee) [GEN ED A-II]

**SPAN 202. INTERMEDIATE SPANISH II. (3)** *Prerequisite: SPAN 201.* Further review of grammar and development of reading skills. (course fee) [GEN ED A-II]

**SPAN 210. INTERMEDIATE SPANISH CONVERSATION ABROAD. (1-3)** *Prerequisite: SPAN 102 or equivalent.* Course designed to develop the vocabulary and communication skills of a student with one year of college Spanish or equivalent, with emphasis on contact with Spanish native speakers. SPAN 210 may not substitute for SPAN 201 or 202, but may count as an elective for the major or minor. Taught in Spanish. May be repeated for a total of three credits.

**SPAN 211. INTERMEDIATE SPANISH CULTURE ABROAD. (1-3)** *Prerequisite: SPAN 102 or equivalent.* Course designed to develop an appreciation for different aspects of Spanish-speaking countries and their people and cultures, for a student with one year of college Spanish or equivalent. SPAN 211 may not substitute for SPAN 201 or 202, but may count as an elective for the major or minor. Taught in Spanish. May be repeated for a total of three credits.

**SPAN 220. SPANISH FOR CRIMINAL JUSTICE PROFESSIONALS. (3)** *Prerequisite: SPAN 102 or equivalent.* Course designed to develop the specific vocabulary and oral communication skills essential for a student who is intending to pursue a career in criminal justice and who has a background in one year of college Spanish or the equivalent. SPAN 220 will primarily be taught in study abroad programs in Mexico.

**SPAN 230. SPANISH FOR MEDICAL PROFESSIONALS. (3)** *Prerequisite: SPAN 102 or equivalent.* Course designed to develop the specific vocabulary and oral communication skills essential for a student who is intending to pursue a career in medicine or nursing who has a background of one year of college Spanish or the equivalent. SPAN 220 will primarily be taught in study abroad programs in Mexico.

**SPAN 306. EXPERIENCING SPANISH ABROAD. (1-6)** *Prerequisites: SPAN 202 or equivalent and permission of instructor. Corequisite: Enrollment in supervised language study while abroad.* Supervised language and cultural studies accomplished during a study abroad program. Students who receive transferable credit for language study done during the study abroad program will receive credit only for cultural study. May be repeated once for a maximum of six hours of credit.

**SPAN 331. BUSINESS SPANISH. (3)** *Prerequisite: SPAN 202 or equivalent.* Introduction to business communication in the Spanish-speaking countries: Linguistic structures and vocabulary, forms of business communication, reading and discussion of business texts, social customs. (course fee)

**SPAN 370. SPANISH CONVERSATION. (3)** *Prerequisite: SPAN 202.* Exercises in pronunciation, comprehension and oral expression. (course fee)

**SPAN 371. SPANISH COMPOSITION AND GRAMMAR. (3)** *Prerequisite: SPAN 202.* Controlled written compositions and oral expression. Systematic and intensive review of grammar. (course fee)

**SPAN 372. LATIN AMERICAN CIVILIZATION AND CULTURE. (3)** *Prerequisite: SPAN 370 or 371 or equivalent.* Survey of the historical and cultural background of Latin America and its people from the Discovery to the present. (course fee) [GEN ED E]

**SPAN 373. SPANISH CIVILIZATION AND CULTURE. (3)** *Prerequisite: SPAN 370 or 371 or equivalent.* Survey of historical and cultural background of Spain and its people from the Roman colonization to the present. (course fee) [GEN ED B-II]

**SPAN 374. LITERATURE AND CULTURE OF SPAIN. (3)** *Prerequisite: SPAN 370 or 371 or equivalent.* An introduction to the culture of Spain through the study of literary texts. The course will discuss the historical contexts and cultural milieu that produced selected texts. The analysis of literary texts will be introduced. [GEN ED B-I]

**SPAN 376. LITERATURE AND CULTURE OF LATIN AMERICA. (3)** *Prerequisite: SPAN 370 or 371 or equivalent.* An introduction to the culture of Latin America through the study of their literary and cultural production. The course will discuss the historical contexts and cultural milieu that produced selected texts. The analyses of literary texts will be introduced. [GEN ED B-I]

**SPAN 381. SPANISH GRAMMAR THROUGH CULTURAL READINGS. (3)** *Prerequisite: SPAN 371.* Students will read a variety of texts in order to increase reading comprehension, acquire a broader vocabulary, and enhance grammatical proficiency in preparation for the study of literature.

**SPAN 389. INTERNSHIP IN SPANISH. (1-3)** *Prerequisites: One 300-level Spanish course or the equivalent, and permission of instructor.* Supervised work using Spanish in a professional setting. Open only to Spanish majors or minors. May be repeated once for elective credit in the major or minor for a maximum of six hours.

**SPAN 455. TOPICS IN HISPANIC LITERARY AND CULTURAL STUDIES. (3)** *Prerequisite: SPAN 372 or 373 or 374 or 376 or equivalent.* Examines different literary and cultural topics of interest in Hispanic Studies. May be repeated for different topics..

**SPAN 470. ADVANCED ORAL SPANISH. (3)** *Prerequisite: SPAN 370 or equivalent.* Conversation units, dramatic sketches, original oral topics. (course fee)

**SPAN 471. ADVANCED SPANISH COMPOSITION. (3)** *Prerequisite: SPAN 371 or equivalent.* Examination of selected literary works; original compositions on selected topics. (course fee)

**SPAN 476. TWENTIETH CENTURY SPAIN. (3)** *Prerequisite: SPAN 373 or 374 or equivalent.* A chronological study of the culture of Spain through the study of representative works. The course will discuss the historical contexts and cultural milieu that produced selected texts. The analyses of literary texts will be introduced.



**SPAN 490. HISPANIC CINEMA. (3)** *Prerequisites: SPAN 370 or SPAN 371 plus one other 300-level class.* Introduction to the cinematic work of Latin American, Spanish, and US-Hispanic-Latino film artists and development of critical interpretative skills that enhance appreciation of films.

**SPAN 499. ADVANCED STUDIES IN SPANISH. (1-4)** *Prerequisites: Junior or senior standing and permission of instructor.* For guided independent study in culture, language, or literature. May be used with consent of full-time program faculty members for work accomplished during study abroad. Number of credit hours will be determined in consultation with instructor. May be repeated for a maximum of six hours of credit.

**SPM – SPORT MANAGEMENT**

**DEPARTMENT OF KINESIOLOGY, RECREATION AND SPORT**

**SPM 200. INTRODUCTION TO SPORT MANAGEMENT. (3)** The history, principles, and objectives within the sport management profession, overview of sport delivery systems, study of sport as a microcosm of society, and career options with sport organizations.

**SPM 402. FISCAL PRACTICES IN RECREATION. (3)** Financial principles and practices relevant in recreation settings. Topics include economic principles, financial management and organization, income sources, fundraising, pricing and budgeting. (Equivalent to REC 402.)

**SPM 404. RECREATION FACILITY MANAGEMENT. (3)** A practical orientation to management for a variety of recreation facilities. (Equivalent to REC 404.)

**SPM 450. SPORT LAW. (3)** *Prerequisites: Junior or senior classification and admitted to Sport Management major.* Legal systems and the concepts of tort law, risk management, product liability, constitutional law, administrative/statutory law, and crowd control and security of sport organizations.

**SPM 452. SPORT LEADERSHIP AND MANAGEMENT. (3)** *Prerequisites: Junior or senior classification and admitted to the Sport Management major.* Knowledge of various skills, roles, and functions of the sport manager, leadership theory and practices as they relate to various sport managerial responsibilities.

**SPM 454. SPORT GOVERNANCE. (3)** *Prerequisites: Junior or senior classification and admitted to Sport Management major.* Familiarization of sport organization governing bodies, including identifying those in amateur and professional sports, their organizational structure, authority, requirements for membership, sanctions and appeals, and the influence of outside political organizations.

**SPM 456. ADVANCE STUDIES IN SPORT. (1-3)** *Prerequisites: Senior classification, permission of advisor, and admitted to Sport Management major.* Research, workshop or project related to the sport industry in collaboration with a faculty member.

**SPM 490. INTERNSHIP IN SPORT. (12)** *Prerequisites: Senior classification, admitted to the Sport Management major and completion of all major courses.* Supervised internship with community, interscholastic, intercollegiate, amateur, or professional sport industry organizations. This experience is supervised and controlled by university faculty members and personnel from sport industry agencies. Students will be responsible for their own transportation to off-campus meetings.

**STAT – STATISTICS**

**DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE**

**STAT 301. INTRODUCTORY PROBABILITY AND APPLIED STATISTICS. (3)** *Prerequisite: MATH 136 or MATH 142 with a grade of C or higher.* A calculus-based introduction to applied statistics, with emphasis on analysis of real data. Curve fitting, probability models, estimation and testing for means and proportions, quality control; use of computers for data analysis and simulation.

**STAT 330. INTRODUCTION TO STATISTICAL SOFTWARE. (3)** *Prerequisite: 3 hours of undergraduate statistics with a grade of C or better, or consent of instructor.* Using proprietary and open-source statistical software for data analysis. Interactive techniques for data management, manipulation and transformation. Interactive techniques for data error checking, descriptive statistics, basic inferential statistics, and basic report generation such as tabular and graphical displays. Introduction to scripts and batch processing when applicable. Proper use and interpretation of the methods are emphasized.

**STAT 401. REGRESSION ANALYSIS. (3)** *Prerequisite: A grade of C or better in STAT 301 or permission of instructor. Prerequisite or corequisite: STAT 330.* Regression topics including simple and multiple linear regression, least squares estimates, inference, transformations, diagnostic checking, and model selection methods. Selected special regression topics will also be introduced. Statistical software packages will be used for analyses.

**STAT 402. EXPERIMENTAL DESIGN. (3)** *Prerequisite: STAT 301 with a grade of C or better or permission of instructor. Prerequisite or corequisite: STAT 330.* Experimental design and analysis topics including single- and multiple-factor designs, factorial and fractional factorial designs, fixed vs. random effects models, response surface, nested designs, and special topics. Statistical software packages will be used for analyses.

**SWAH – SWAHILI**

**DEPARTMENT OF MODERN LANGUAGES**

**SWAH 101. ELEMENTARY SWAHILI. (3)** Prepares students to communicate verbally and in writing in simple routine tasks; to understand written or spoken communication on everyday topics and develop cultural awareness.

**SWAH 102. ELEMENTARY SWAHILI II. (3)** *Prerequisite: SWAH 101.* Continuation of the development of communication skills on everyday topics and of cultural insights. [GEN ED A-II]

**SWRK – SOCIAL WORK**

**DEPARTMENT OF SOCIAL WORK**

**SWRK 101. FOUNDATIONS OF HUMAN SERVICES. (3)** Starting with the basic principles, concepts and a historical perspective, the course will examine problems addressed by diverse social service programs and explore their activities. [GEN ED C]

**SWRK 205. INTRODUCTION TO SOCIAL WORK. (3)** An introduction to the social work profession and its value, skill and knowledge bases. The history, development, and current status of the social work profession are explored. This introductory course emphasizes appreciation of and respect for human diversity as core concerns of professional social work practice.

**SWRK 270. MENTAL HEALTH AND SOCIAL POLICY. (3)** A survey course of the mental health delivery system in the United States. Services and issues will be discussed.

**SWRK 326. SERVICES FOR THE OLDER AMERICAN. (3)** *Prerequisite: Junior standing or consent of instructor.* This course focuses on individual and societal aspects of aging with emphasis on programs, resources and services to meet the social tasks of later life.

**SWRK 330. HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT I. (3)** *Prerequisites: SWRK 101 and 205. Prerequisite for majors: Admission to the program.* The social, natural, and behavioral sciences are used to examine human behavior across the life span, especially as influenced by ethnicity, class, gender, sexual orientation, and ability.

**SWRK 331. HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT II. (3)** *Prerequisite: SWRK 330.* Human behavior in the social environment with emphasis on families, groups, organizations, communities, and cultures. The importance of diversity and the human environment as factors in influencing behavior will be highlighted.

**SWRK 344. SOCIAL WORK STATISTICS AND DATA ANALYSIS. (3)** *Prerequisites: MATH 116 or equivalent, SWRK 101 and 205. Enrollment limited to a social work major or minor.* An introduction to descriptive and inferential statistics, focusing on integrating research and social work practice, and computer applications in research.

**SWRK 345. SOCIAL WORK RESEARCH METHODS. (3)** *Prerequisite: SWRK 344.* An introduction to concepts, research design, and program evaluation in social work research. Emphasis will be placed on developing skills in utilizing research information in social work practice.

**SWRK 356. SERVICES FOR JUVENILE OFFENDERS AND THEIR FAMILIES. (3)** *Prerequisite: Junior standing or consent of instructor.* The nature and extent of delinquency, structure, and function of the juvenile court will be stressed. Emphasis will be on the provision of services to the juvenile offenders and their families.

**SWRK 375. SOCIAL WORK PRACTICE I. (3)** *Prerequisites: SWRK 101, SWRK 205 and admission to the program. Corequisite: SWRK 330.* The first of three practice classes that equip students with theory and skills for effective generalist social work practice with individuals and their interpersonal networks.

**SWRK 378. SOCIAL WORK PRACTICE II. (3)** *Prerequisites: SWRK 330 and 375, restricted to social work majors.* The second of three practice classes that equip students with theory and skills for effective generalist social work practice with groups.

**SWRK 379. INTRODUCTION TO SOCIAL WORK COMMUNICATION SKILLS. (3)** *Prerequisites: SWRK 330 and SWRK 375.* Study and practice of interviewing individuals, families, and groups. The skill of relationship building as it relates to both micro and macro practice of social work is emphasized.

## Course Descriptions

**SWRK 381. SOCIAL WORK PRACTICE III. (3)** *Prerequisites:* SWRK 379. The third of three practice classes that equip students with theory and skills for effective generalist social work practice with organizations and communities.

**SWRK 395. SOCIAL WELFARE POLICY AND ISSUES. (3)** *Prerequisites:* SWRK 330. An understanding of the historical perspectives of social welfare policies as they affect current policy issues. Includes examination of the processes of policy formulation. Models of policy analysis assist students in identifying, and their impact on citizens representing a diversity of backgrounds.

**SWRK 433. ETHICAL ISSUES AND DILEMMAS IN SOCIAL WORK. (3)** *Prerequisites:* SWRK 101 and SWRK 205, or permission of the instructor. An examination of professional ethics and common ethical dilemmas in social work. Models of ethical decision making are applied in case vignettes.

**SWRK 436. SERVICES TO CHILDREN. (3)** *Prerequisite:* Junior standing or consent of instructor. A survey of institutional and community services with focus on principles of social services for children and their families.

**SWRK 450. CHILD MALTREATMENT. (3)** *Prerequisite:* Junior standing. Comprehensive introduction to child abuse and neglect from a social work perspective. The extent of the problem, effects on children, treatment issues, the social worker's role, and advocacy on behalf of individuals and families are explored. This course is the first of two specific course requirements for the Public Child Welfare Certification Program available through WKU and the Kentucky Cabinet for Families and Children.

**SWRK 451. CHILD MALTREATMENT INTERVENTIONS. (3)** *Prerequisites:* SWRK 375 and 450. Second of two specific course requirements for the Public Child Welfare Certification Program available through WKU and the Kentucky Cabinet for Families and Children. Covers various practice skills and treatment interventions related to social work with abused neglected children and their families. Students will have several opportunities to develop their own skills through a variety of teaching methods.

**SWRK 480. SOCIAL WORK FIELD PRACTICUM I. (3)** *Prerequisites:* SWRK 345, 378, 381, field director approval and senior standing. *Corequisite:* SWRK 481. Social Work practice experience in a social service agency.

**SWRK 481. SOCIAL WORK FIELD SEMINAR I. (3)** *Prerequisites:* SWRK 345, 378, 381, and admission to the field internship, and senior standing. *Corequisite:* SWRK 480. Integration of the knowledge, skills, values, and experiences gained in the internship.

**SWRK 482. SOCIAL WORK FIELD PRACTICUM II. (3)** *Prerequisites:* SWRK 480/481. *Corequisite:* SWRK 483. Continued social work practice experience in a social service agency.

**SWRK 483. SOCIAL WORK FIELD SEMINAR II. (3)** *Prerequisites:* SWRK 480/481. *Corequisite:* SWRK 482. Integrates the knowledge, skills, values, and experiences gained during the second semester of the internship.

**SWRK 485. INTEGRATED GENERALIST SOCIAL WORK PRACTICE. (3)** *Prerequisites:* SWRK 331, 375, and 379. Overview of social work practice theories, skills, cultural competencies, values and policies. Provides a framework for contextualizing social work practice interventions across multilevel client systems. Includes preparation for the field practicum experience and professional development.

**SWRK 490. SELECTED TOPICS IN SOCIAL WORK. (3)** *Prerequisite:* Consent of instructor. This course permits in-depth examination of selected topics in social work. The specific topics vary. May be repeated with different topics.

**SWRK 495. DIRECTED STUDY. (1-3)** *Prerequisites:* Junior standing and consent of director. Available to students who wish to conduct individual, intensive reading and research in a specific area of social work, in close cooperation with supervising faculty. Approval required prior to enrollment.

**SWRK 496. DIRECTED STUDY. (1-3)** *Prerequisites:* Junior standing and consent of director. Available to students who wish to conduct individual, intensive reading and research in a specific area of social work, in close cooperation with supervising faculty. Approval required prior to enrollment.

### THEA / THE – THEATRE DEPARTMENT OF THEATRE AND DANCE (THEA) DEPARTMENT OF LIBERAL ARTS AND SCIENCES (THE)

**THEA 101. ACTING I. (3)** Improvisation, theatre games, and simple scene and/or monologue work intended to develop fundamental performance and ensemble collaboration skills.

**THEA 141. STAGE MAKEUP. (1)** Fundamental theory and application of standard and character stage makeup.

**THEA 151 / THE 151C. THEATRE APPRECIATION. (3)** A study of the literary, historical and creative aspects of the theatre. It is designed to develop an understanding and appreciation of the art of theatre from the point of view of the audience. [GEN ED B-II]

**THEA 203. ACTING AUDITION WORKSHOP. (1)** A developmental studio workshop designed to help students select and prepare effective audition monologues, learn and apply performance techniques unique to the auditioning, and successfully navigate the audition application process. Required for all students needing written departmental recommendation on audition application forms. Repeatable once for credit. (Grading: Pass/Fail)

**THEA 219. DESIGN I. (3)** *Prerequisite:* THEA 252 or permission of instructor. An introduction to the fundamental design concepts, techniques and processes common to all areas of theatre production.

**THEA 222. STAGECRAFT. (3)** *Prerequisites:* PERF 120: Rehearsal & Production I, or permission of instructor. Students enrolling in this course must also concurrently enroll in a section of Rehearsal & Production. This course presents the fundamental tools, materials and methods of scenery construction. Other topics include stage rigging, drafting and scene painting. Practical experience is gained by assisting with the construction of scenery for the department's mainstage productions.

**THEA 230. STAGE COMBAT I: UNARMED. (3)** *Prerequisites:* THEA 101, PERF 205, or permission of instructor. A study of unarmed violence for the stage including punches, slaps, kicks, falls, and rolls. Classics vs. contemporary approaches to staging violence will also be covered. Repeatable once for a total of 6 credit hours, only three of which may be applied towards a major.

**THEA 241. COSTUME TECHNOLOGY. (3)** *Prerequisite:* PERF 120, or permission of instructor. Students enrolling in this course must also concurrently enroll in a section of Rehearsal and Production. A basic study of construction techniques for complete stage costumes with emphasis on historical costumes for the theatre.

**THEA 250. STAGE ELECTRICS. (3)** *Prerequisite:* PERF 120 or permission. Students enrolling in this course must also concurrently enroll in a section of Rehearsal and Performance. Introduction to the fundamentals of lighting and sound for theatre.

**THEA 252. FUNDAMENTALS OF THEATRE. (3)** An introductory course in theatre. It provides the student with a study of play analysis and its practical application by means of theatre production projects.

**THEA 300. ACTING II. (3)** *Prerequisites:* THEA 101 and PERF 205 or permission of instructor. A combined studio/theory course introducing the fundamentals of characterization and rehearsal techniques, from basic scene analysis through performance.

**THEA 301. ACTING III. (3)** *Prerequisites:* THEA 101 and 300. An advanced acting studio course focusing on text and character analysis, characterization and performance.

**THEA 303. ACTING FOR THE CAMERA. (3)** A fundamental approach to auditioning and acting for the camera.

**THEA 306. MUSICAL THEATRE ENSEMBLE. (1)** Musical theatre vocal ensemble. Repeatable 7 times for a total of 8 credit hours.

**THEA 307. MUSIC THEATRE WORKSHOP I. (2)** *Prerequisites:* THEA 101 or permission of instructor. Practice in integrating singing, acting, and movement using musical theatre repertoire from 1920 to present. Repeatable three times for up to 8 hours of credit. (course fee)

**THEA 312. STAGE MANAGEMENT PRACTICUM. (3)** *Prerequisites:* Permission of instructor. Requires a concurrent stage management assignment. A practical application course designed to dovetail with an actual stage management assignment providing theoretical grounding and practical "on-the-job" experience in stage management.

**THEA 319. DESIGN II. (3)** *Prerequisite:* THEA 219 or permission of the instructor. Application of fundamental design concepts and techniques to the design of scenery, costumes and lighting for the theatre.

**THEA 322. STAGE DESIGN. (3)** *Prerequisite:* THEA 222, 319 or permission of instructor. This course presents basic principles for designing theatre scenery. The student will create designs for three plays, including one complete design with drafting, sketches and a model.

**THEA 330. STAGE COMBAT II. (3)** *Prerequisite:* THEA 230 or permission of instructor. Staged swordplay technique and choreography featuring single rapier. Repeatable 2 times for credit.

**THEA 354. HISTORY OF DRAMA TO 1640. (3)** A comprehensive course which traces the major developments in drama from the ancient Greeks to 1640. Emphasis is placed on representative dramatists and plays.

**THEA 355. HISTORY OF DRAMA SINCE 1640. (3)** A continuation of THEA 354.

**THEA 358. DRAMA WRITING. (3)** *Prerequisite:* ENG 200, 203 or permission of instructor. A concentrated study of the techniques of drama writing emphasizing contemporary theory and practice.

**THEA 360. SUMMER THEATRE. (3)** Faculty supervision of students' work with an approved summer stock theatre.

**THEA 363. WORLD THEATRE HISTORY I. (3)** A study of influential, worldwide theatrical movements, ideas, technologies and personalities that shaped the development of theatre from origin theories through 17th century.

**THEA 364. WORLD THEATRE HISTORY II. (3)** A study of influential, worldwide theatrical movements, ideas, technologies and personalities that shaped the development of theatre from the 18th century to the present.

**THEA 371. DIRECTING I. (3)** *Prerequisite:* THEA 252. A combined theory/studio course designed to provide both a theoretical framework and practical experience with the stage director's pre-production process, including, dramaturgical research and analysis, production conceptualization, promptbook preparation, the fundamentals of stage composition, organic blocking and the director/designer collaboration.

**THEA 372. DIRECTING LAB. (1)** *Corequisite:* THEA 371 or permission of instructor. Studio for THEA 371. Applied practice in ground-plan development and implementation, organic blocking, coaching actors and rehearsal management. Repeatable once for credit.

**THEA 375. TOPICS IN DRAMA. (3)** *Prerequisite:* THEA 252 or ENG 354 or ENG 355. Topics-based course focusing on a particular area of dramatic theory and/or literature. May be repeated twice for a total of 9 credit hours.

**THEA 380. DIRECTING II. (3)** *Prerequisite:* THEA 371 and permission of instructor. Applied practice in ground-plan development and implementation, organic blocking, coaching actors, and rehearsal management.

**THEA 385. APPLIED VOCAL STYLES. (1)** *Prerequisite:* Instructor permission. Topic based individual or small group instruction in applied vocal styles for the theatre. Repeatable 5 times for a total of 6 credit hours.

**THEA 391. CHILDREN'S THEATRE/ CREATIVE DRAMATICS. (3)** *Prerequisite:* THEA 252 or permission of instructor. An examination of the selection, preparation, and presentation of plays for children, and the study of creative dramatics. Emphasis on analysis of children's plays, script sources and production planning.

**THEA 392. PRODUCTION OF THEATRE FOR CHILDREN. (3)** *Prerequisites:* THEA 371, THEA 372 and THEA 391 or permission of instructor. A practical application of children's theatre training by means of a traveling children's theatre production company performing on campus and in the surrounding area.

**THEA 401. PERIOD STYLES LAB. (3)** *Prerequisite:* THEA 301 or THEA 371 or permission of instructor. Intensive, collaborative scenework, focusing on the special demands of analyzing, conceptualizing and performing period plays, with an emphasis on verse drama.

**THEA 407. MUSICAL THEATRE WORKSHOP II. (2)** *Prerequisite:* THEA 307 or permission of instructor. A continuation of musical theatre study begun in THEA 307, this course offers advanced character study for both songs and scenes in the American musical theatre repertoire from 1920 to present. Repeatable two times for up to six hours of credit.

**THEA 410. PLAYING SHAKESPEARE. (3)** *Prerequisite:* THEA 301 or permission of instructor. Advanced acting course focusing on the application of performance and characterization skills in the performance of Shakespearean/Jacobean dramatic literature. Repeatable once for credit.

**THEA 412. SPECIAL TOPICS IN ACTING. (3)** *Prerequisite:* THEA 301. Topics-based course focusing on a particular area of advanced acting craftsmanship. May be repeated twice for a total of 9 credit hours.

**THEA 415. DIRECTING STUDIO. (3)** *Prerequisites:* THEA 371 and permission of instructor. Offers advanced stage directing students an opportunity to learn and apply the stage directing skills needed in the rehearsal and performance phases of live theatre production under actual production conditions.

**THEA 422. STAGE LIGHTING DESIGN. (3)** Lighting equipment is demonstrated and the student is provided practical experience in working with lights for the major productions, at a time other than the class period. Each student will design the lighting for a full-length play.

**THEA 424. SPECIAL PROBLEMS IN TECHNICAL THEATRE. (3)** Repeatable once with a different topic. A special-problems course for advanced study in the area of technical theatre: scenery, costume, lighting and sound. The topic and project organization are to be submitted by the student and approved by the faculty during the semester prior to the project.

**THEA 425. PLAY PRODUCTION IN THE SCHOOLS. (3)** Offers practical instruction in the fundamentals of theatrical production at the secondary school level. Emphasis on providing current and future teachers with resource materials and practical solutions to the challenge of producing and directing high quality theatre in the schools.

**THEA 431. MUSICAL THEATRE HISTORY AND REPERTOIRE. (3)** A study of the development of the musical theatre; the style and form of its music; dance and drama; and its impact on the modern theatre. (course fee)

**THEA 441. COSTUME DESIGN. (3)** *Prerequisite:* THEA 319. An advanced course for theatre majors as well as those interested in understanding the concept of costuming. Emphasis is placed upon the historical and practical aspects of theatrical costume design.

**THEA 455. AMERICAN DRAMA. (3)** This course deals with the development of American drama from colonial productions to present-day plays.

**THEA 459. MODERN DRAMA. (3)** A selected study of dramatic literature since Ibsen, with emphasis on evolving developments and trends in world theatre.

**THEA 499. STUDIES IN BRITISH THEATRE. (3)** A study of the British theatre highlighted by a tour to England and viewing of representational plays of the English theatre, including visitations to supplementary historical and cultural sites.

#### UC / UCC – UNIVERSITY COLLEGE

DEPARTMENT OF INTERDISCIPLINARY STUDIES (UC)  
DEPARTMENT OF LIBERAL ARTS AND SCIENCES (UCC)

**UC 175 / UCC 175C. UNIVERSITY EXPERIENCE. (2-3)** *Special Requirements:* For first year students or transfer students with fewer than 23 semester hours of credit. Introduction to university life. Topics include: Study skills, critical, reading and thinking skills, library education, exploration of majors and careers, of campus resources and personal development. Individual departments may offer sections for their majors addressing additional topics relevant to their field of study (e.g. PSY 175, BIOL 175). Some department specific sections are offered for three credit hours.

**UC 176/ UCC 176C. SPECIAL TOPICS. (1)** *Corequisite:* UC 175. UC 176 provides special topics emphasis to UC 175. Students will receive three credit hours for the combined UC 175 and 176.

**UCC 200C. INTRODUCTION TO AMERICAN ACADEMIC CULTURE. (3)** Open to international nonnative-English-speaking international students with graduate student status; or with instructor permission. A course for international nonnative – English– speaking–graduate students to strengthen skills in academic English and to assist their acclimation to American academic culture. May not be applied toward completion of any graduate program.

**UCC 250C. SEMINAR IN PEER MENTORING. (2)** *Prerequisite:* UC 175 or UCC 175C equivalent or sophomore class standing (30 hours) or instructor permission. An introduction to effective mentoring techniques and leadership skills including an examination of mentoring and leadership theories and styles. (Grading: Pass/Fail)

**UCC 251C. PRACTICUM IN PEER MENTORING. (1)** *Prerequisite:* UCC 250C with a grade of B or higher and instructor permission. Supervised mentoring experience in an appropriate first-year student setting. Students may repeat this course up to a maximum of 3 credit hours. (Grading: Pass/Fail)

#### UM – WATER UTILITIES MANAGEMENT

DEPARTMENT OF ARCHITECTURAL AND MANUFACTURING SCIENCES

**UM 101. WATER UTILITY MANAGEMENT. (3)** Overview of water and wastewater utility activities and functions leading to professional designation in utility management.

**UM 205. WATER UTILITY ORGANIZATION, REGULATION AND LAW. (3)** *Prerequisite:* UM 101. Overview of the organization, structure, and legal aspects of water and wastewater utilities.

**UM 215. WATER UTILITY FINANCE AND ADMINISTRATION. (3)** *Prerequisite:* UM 101. Overview of the financial and administrative aspects of water and wastewater utilities.

**UM 225. HUMAN RESOURCE MANAGEMENT FOR WATER UTILITIES. (3)** *Prerequisite:* UM 101. Overview of the staffing, compensation, and human resource utilization aspects of water and wastewater utilities.



## Course Descriptions

### UM 235. WATER UTILITY MANAGEMENT AND HUMAN RELATIONS. (3)

*Prerequisite:* UM 101. Overview of the management and human relations aspects of water and wastewater utilities including board/manager, employee, public, and other utility relations.

### UM 245. MODERN TECHNOLOGY AND WATER UTILITY MANAGEMENT. (3)

*Prerequisite:* UM 101. Overview of the essential functions of public drinking water and wastewater utilities focusing on the emerging technologies and evolving legislation that drive quality and quantity issues.

### UM 290. INTERNSHIP: UTILITY MANAGEMENT. (3) *Prerequisite:* WTTI 200.

*Requires placement by the WTI Program Coordinator and instructor's permission.* Internship in water/wastewater management. May be paid or unpaid. Coordination required via WTI Program Coordinator. May be repeated one time for credit.

### WMN – WOMEN'S STUDIES

#### DEPARTMENT OF LIBERAL ARTS AND SCIENCES (WMN)

**WMN 200C. INTRODUCTION TO WOMEN'S STUDIES. (3)** Drawing on historical perspectives and cultural analysis, this course examines such topics as women and work, violence against women, family, and the social construction of gender, sexuality, race, and class. [GEN ED C]

### WTTI – WATER/WASTEWATER TECHNOLOGY

#### DEPARTMENT OF ARCHITECTURAL AND MANUFACTURING SCIENCES

**WTTI 200. WATER SUPPLY AND WASTEWATER CONTROL. (3)** This course is designed to familiarize the student with water supply and wastewater control. Emphasis is on the operational aspects of water supply, water distribution, wastewater collection, and wastewater treatment and disposal. Upon completion, students should be able to apply technical concepts and principles of water supply and wastewater control.

**WTTI 201. HYDROLOGY FOR WATER OPERATIONS. (5)** The properties, distribution, and circulation of water as it moves through the atmosphere, across and below the earth's surface, with emphasis on water and wastewater operations. Topics include the hydrologic cycle, groundwater, rainfall, droughts, and volume and flow.

### WTTI 202. DRINKING WATER SOURCES, QUALITY AND STANDARDS. (.75)

Examination of sources of drinking water, including identification of the various types and courses of contaminants in natural and artificial water systems, and standards used to establish drinking water quality.

### WTTI 203. INTRODUCTION TO DRINKING WATER TREATMENT. (.5)

Introduction to the processes and equipment used to create safe drinking water, including treatment at the source, preliminary treatment, and purification.

**WTTI 204. INTRODUCTION TO WASTEWATER TREATMENT. (.5)** Introduction to the equipment, structures, and processes used in the treatment of wastewater. Examines various legislation and regulations pertaining to wastewater treatment and effluent standards.

### WTTI 205. INTRODUCTION TO DRINKING WATER DISTRIBUTION. (.5)

Introduction to the equipment and structures used in drinking water transmission and distribution systems. Topics include system design and maintenance, the use of centrifugal pumps and water mains, and computer applications.

**WTTI 206. INSTRUCTION TO WASTEWATER COLLECTION. (.5)** Introduction to the equipment, structures, and design of wastewater collection systems. Topics include the layout and construction of sanitary sewers, lift stations, infiltration and inflow, and treatment methods.

### WTTI 210. WATER TREATMENT PROCESSES. (3) *Prerequisite:* WTTI 200C.

This course is designed to train prospective water treatment plant operators and managers in the practical aspects of operating and maintaining water treatment plants, with emphasis on the use of safe practices and procedures. Students will learn how to safely operate and maintain coagulation, flocculation, sedimentation, filtration, and disinfection processes. They will also learn how to control tastes and odors in drinking water, control corrosion to meet the requirements of the Lead and Copper Rule, perform basic water laboratory procedures, and solve arithmetic problems commonly associated with water treatment plant operations.

**WTTI 211. WASTEWATER TREATMENT PROCESSES. (3)** This course is designed to train prospective wastewater treatment plant operators and managers in the practical aspects of operating and maintaining wastewater treatment plants, with emphasis on the use of safe practices and procedures. Students will learn how to safely operate and maintain racks, screens, comminutors, sedimentation tanks, trickling filters, rotating biological contractors, package activated sludge plants, oxidation ditches, ponds, chlorination facilities. Students will also learn how to analyze and solve operational problems and how to perform mathematical calculations relating to wastewater treatment process control.

### WTTI 212. WATER DISTRIBUTION AND WASTEWATER COLLECTION

**SYSTEMS. (3)** This course is designed to enable students to understand the operation and maintenance of a waterworks distribution system and to familiarize students with the components of wastewater collection systems. Overview of design installation, operation, monitoring, maintenance and repair/rehabilitation of sewer pipelines, pump stations and related facilities.

### WTTI 213. BASIC DRINKING WATER TREATMENT PROCESSES. (.75)

*Prerequisite:* WTTI 203. The effects of characteristics of water that hinder quality and treatment techniques which improve water quality. Topics include fluoridation, and the treatment and control of iron, manganese, and hard water.

### WTTI 214. COAGULATION AND FLOCCULATION PROCESSES IN WATER

**TREATMENT. (.5) *Prerequisite:* WTTI 203 or 204.** Examination of the processes that remove suspended solids from drinking water and wastewater. Topics include chemicals used, rapid-mix facilities, flocculation facilities, regulations, dosage control, safety precautions, and record keeping.

### WTTI 215. SEDIMENTATION BASINS AND CLARIFIERS IN WATER

**TREATMENT. (.5) *Prerequisite:* WTTI 203 or 204.** Course outlining the use sedimentation processes in water treatment. Topics include equipment and structures utilized in the process, operation, other clarification processes, and record keeping.

### WTTI 216. WATER FILTRATION PROCESSES. (.5) *Prerequisite:* WTTI 203 or

204. Equipment, structures, and operational factors used in filtration systems for water and wastewater treatment facilities. Topics include approaches to filtration, gravity filters, pressure filtration, regulations, safety precautions, and record keeping.

### WTTI 217. WATER DISINFECTION PROCESSES. (1) *Prerequisite:* WTTI 203 or

204. Equipment, structures, and processes used during the disinfection process in water and wastewater treatment. Topics include chlorination processes, other oxidant processes, disinfection regulations, control tests, safety precautions and record keeping.

### WTTI 220. CALCULATIONS AND HYDRAULICS FOR WATER. (3) *Prerequisite:*

*WTTI 200.* This course is designed to provide the student with an understanding of the mathematical principles and practical hydraulic design related to water supply. Topics include the treatment and distribution of water. Study includes solving problems related to treatment systems including hydraulic volumes, dimensional analysis, calculations and chemic dose rates as it relates to water treatment and distribution. Provides information and procedures necessary to predict and manipulate the hydraulics of water transmission. The primary work assignments involve the reading and using of hydraulic principles and them applying them in real-life cause analysis. Upon completion, students should be able to apply principles of mathematics and hydraulics systems to water management practices.

### WTTI 221. CALCUATIONS AND HYDRAULICS FOR WASTEWATER AND

**STORMWATER. (3) *Prerequisite:* WTTI 220.** This course is designed to provide the student with an understanding of the mathematical principles and practical hydraulic design related to wastewater and stormwater control. Topics include the collection and treatment of domestic and industrial wastewater, wastewater collection and stormwater. Study includes solving problems related to treatment systems including hydraulic volumes, dimensional analysis, primary and secondary sewage treatment, calculations and chemical dose rates as it relates to wastewater and stormwater technology. Provides information and procedures necessary to predict and manipulate the hydraulics of wastewater and stormwater collection. The primary work assignments involve the reading and using of hydraulic principles and then applying them in a real-life case analysis. Upon completion, students should be able to apply principles of mathematics and hydraulic systems to wastewater and stormwater management practices.

### WTTI 222. WATER AND WASTEWATER INSTRUMENTATION AND CONTROL.

**(3) *Prerequisite:* WTTI 200.** This course focuses on the basic fundamentals of instrumentation applicable to water and wastewater management. The application, maintenance, and calibration of instruments in water and wastewater systems are emphasized. Upon completion, students should be able to read, calibrate and maintain mechanical, electrical, hydraulic, and pneumatic sensing equipment; and indicating, recording, and control equipment.

### WTTI 223. BASIC CALCUATIONS FOR WATER OPERATIONS. (1.25)

Introduction to calculations used by operators to determine load, demand, and other quantities critical to water and wastewater operations. Topics include per capita water use, domestic water use based on household fixture rates, water use per unit of industrial product produced, demand analysis, and load estimation.

### WTTI 224. BASIC HYDRAULICS FOR WATER OPERATIONS. (1) Basic

hydraulic concepts and calculations necessary for operating water and wastewater systems. Topics include basic properties of fluids, pressure and force, head and head loss, pumping calculations, flow, thrust control, and computer applications.

**WTTI 225. BASIC HYDRAULICS IN DRINKING WATER DISTRIBUTION NETWORKS. (.5)** *Prerequisites: WTTI 223 and 224.* Basic hydraulic concepts driving the planning, design, construction, and operation of a pressurized network.

**WTTI 226. WATER CHEMISTRY. (.3)** *Prerequisite: WTTI 200.* This course is designed to explore basic chemical concepts and principles such as elements, compounds, states of matter and reactions that are applicable to evaluating and regulating water quality and applies them to water and wastewater treatment. Students also examine laboratory techniques, equipment, quality assurance, and recordkeeping and reporting.

**WTTI 227. BASIC HYDRAULIC CONCEPTS IN WASTEWATER COLLECTION SYSTEMS. (.5)** *Prerequisites: WTTI 223 and 224.* Basic hydraulic concepts driving the planning, design, construction, and operation of wastewater collection systems. Topics include the function and operation of open channel and gravity flow collection system networks.

**WTTI 230. ADVANCED WATER TREATMENT PROCESSES. (.3)** *Prerequisite: WTTI 210.* This course is a continuation of WTTI 210 and is designed to train prospective water treatment plant operators and managers in the practical aspects of operating and maintaining water treatment plans, with emphasis on the use of safe practices and procedures. Information is presented on drinking water regulations (including the Safe Drinking Water Act), iron and manganese control, fluoridation, softening, trihalomethanes, demineralization, handling and disposal of process wastes, maintenance, instrumentation, and advanced laboratory procedures.

**WTTI 231. ADVANCED WASTEWATER TREATMENT PROCESSES. (.3)** *Prerequisite: WTTI 211.* This course is a continuation of WTTI 211 and is designed to train prospective wastewater treatment plant operators and managers in the practical aspects of operating and maintaining wastewater treatment plans, with emphasis on the use of safe practices and procedures. Topics covered include conventional activated sludge processes, sludge digestion and solids handling, effluent disposal, plant safety and good housekeeping, plant and equipment maintenance, laboratory procedures and chemistry, use of computers of plan operation and maintenance, analysis and presentation of data, and records and report writing. Students will also learn how to analyze and solve operational problems and how to perform the mathematical calculations relating to wastewater treatment process control.

**WTTI 232. WASTEWATER MICROBIOLOGY. (.5)** *Prerequisite: WTTI 204.* Bacteria and other microscopic organisms in wastewater, the equipment and structures used to grow or remove microorganisms, and the role microorganisms play in the breakdown of waste material.

**WTTI 233. NATURAL WASTEWATER TREATMENT SYSTEMS. (.5)** *Prerequisites: WTTI 204.* Examination of the equipment, structures, and operating factors in natural wastewater treatment systems.

**WTTI 234. BASIC INFRASTRUCTURE FOR WATER DISTRIBUTION & WASTEWATER. (1)** *Prerequisite: WTTI 205 or 206.* Basic components of drinking water distribution systems and wastewater collection systems, including equipment, structures, and operating factors affecting the planning, design, and construction.

**WTTI 235. WATER DISTRIBUTION SYSTEM COMPONENTS. (.75)** *Prerequisite: WTTI 205.* Introduction to the components used in drinking water distribution systems and the factors involved in planning, operating, and maintaining them. Topics include hydrants, meters, cross-connections, backflow control methods and devices, and records and reporting.

**WTTI 236. WATER DISTRIBUTION SYSTEM OPERATION AND MAINTENANCE. (1.25)** *Prerequisite: WTTI 205.* Examination of the procedures used in the operation and maintenance of water distribution networks. Topics include pipe shipment and handling, excavation, laying pipe, pressure and leak testing, flushing and disinfection, inspections, site restorations, water main installation, maintaining water quality, maintaining flow and pressure, meter locations, service lines, and thawing.

**WTTI 237. WASTEWATER COLLECTION SYSTEM ASSESSMENT AND REPAIR. (.5)** *Prerequisite: WTTI 206.* Procedures used in the operation and maintenance of wastewater collection systems. Topics include operation and maintenance, inspecting and testing components, pipeline and manhole cleaning and inspection methods, and underground repair.

**WTTI 238. WASTEWATER COLLECTION SYSTEMS MANAGEMENT. (.5)** *Prerequisite: WTTI 206.* Management concepts and considerations in the wastewater industry. Topics include operation and maintenance, information management, system design, construction, and assessment, public policy and community relations, budgeting and financial planning, and safety and security.

**WTTI 239. STORMWATER MANAGEMENT FOR OPERATORS. (.5)** *Prerequisite: WTTI 206.* Control and mitigation of stormwater runoff via wastewater treatment facilities. Topics include estimating stormwater runoff, storm sewer systems, best management practices, floodplains, control of combined sewer overflows, controlling constituent discharges, and computer applications.

**WTTI 240. MOTORS, ENGINES, AND CONTROLS IN WATER OPERATIONS. (.5)** Investigation of motors, engines, and controls used in water and wastewater treatment operations. Topics include electric motors, combustion engines, electrically driven pumps, motor and engine records, and motor and engine safety.

**WTTI 241. INTRODUCTION TO INSTRUMENTATION & CONTROL SYSTEMS IN WATER. (.75)** Introduction to the instrumentation and control systems used in water and wastewater operations. Topics include instrumentation, telemetry, control systems, Supervisory Control and Data Acquisition (SCADA) system components, operation and maintenance, flow, pressure, and level measurement, and automation.

**WTTI 242. BASIC ELECTRICITY FOR WATER OPERATIONS. (.5)** Investigation of the basic concepts and applications of electricity in water and wastewater operations.

**WTTI 243. FLOWMETERS, SENSORS AND PROCESS MEASUREMENTS. (.5)** Investigation of the equipment and techniques used to measure flow and other process information in water and wastewater operations.

**WTTI 244. AUTOMATIC PROCESS CONTROL FOR WATER OPERATIONS. (.75)** *Prerequisite: WTTI 243.* Analysis of the equipment and procedures used in the automated control processes in water or wastewater facilities.

**WTTI 249. BASIC WATER CHEMISTRY FOR OPERATORS. (1)** Assessment of the essential chemical properties of water and how they can affect water quality.

**WTTI 250. DRINKING WATER SAMPLING AND ANALYSIS. (1)** *Prerequisite: WTTI 249.* Study of techniques of sampling and laboratory testing of drinking water resources.

**WTTI 251. WASTEWATER SAMPLING AND ANALYSIS. (1)** *Prerequisite: WTTI 249.* Investigation of the procedures for effectively sampling and analyzing wastewater. Topics include operating laboratory equipment, analyzing in accordance with NPDES permit requirements, and recording laboratory results.

**WTTI 252. WATER OPERATOR SAFETY. (.75)** Basic process of ensuring a safe working environment for water and wastewater operators. Topics include inspections, procedures, and programs which ensure safety in the workplace.

**WTTI 253. WASTEWATER REGULATIONS. (.5)** Analysis of all major forms of regulation that apply to the wastewater industry. Topics include the evolution of the Clean Water Act, pretreatment program requirements, permit compliance, safety regulations, and the National Pollutant Discharge Elimination System (NPDES).

**WTTI 254. CORROSION CONTROL IN WATER OPERATIONS. (.5)** *Prerequisite: WTTI 203.* Investigation of the methods and techniques used to minimize corrosion in water treatment facilities. Topics include corrosion control methods, facilities, regulations, record keeping, and safety precautions.

**WTTI 255. ION EXCHANGE PROCESSES IN WATER TREATMENT. (.5)** *Prerequisite: WTTI 203.* Process and equipment used in ion exchange treatment of water. Topics include ion exchange softening, operation of ion exchange processes, and record keeping.

**WTTI 256. ADSORPTION PROCESSES IN WATER TREATMENT. (.5)** *Prerequisite: WTTI 203.* Analysis of the process and equipment used in the adsorption process in water treatment. Topics include the principles of adsorption, adsorption facilities, regulations, operating procedures, safety precautions, and record keeping.

**WTTI 257. AERATION PROCESSES IN WATER TREATMENT. (.5)** *Prerequisite: WTTI 203.* Investigation of the process and equipment used during the aeration process in water treatment. Topics include process description, types of aerators, regulations, control tests, operating problems, safety precautions, and record keeping.

**WTTI 258. MEMBRANE PROCESSES IN WATER TREATMENT. (.5)** *Prerequisite: WTTI 203.* Exploration of the processes and equipment used in membrane filtration. Topics include microfiltration facilities, pleated membrane facilities, nanofiltration and reverse osmosis facilities, operating programs, and record keeping.

**WTTI 259. INTRODUCTION TO RESIDUALS MANAGEMENT IN WATER OPERATIONS. (.5)** *Prerequisite: WTTI 203 or 204.* Equipment, structures, and processes associated with residual management in water and wastewater systems. Topics include sludge calculations, removal of sludge by traditional sedimentation processes, softening sludge, and solids separation technology.

## Course Descriptions

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**WTTI 260. SUSPENDED GROWTH SYSTEMS IN WASTEWATER OPERATIONS. (.5) Prerequisite: WTTI 204.** Design and processes of suspended growth systems in wastewater treatment facilities. Topics include the operation of activated sludge plants, controlling biomass inventory, energy use and saving opportunities, aerobic digestion, and solids handling.

**WTTI 261. ATTACHED GROWTH SYSTEMS IN WASTEWATER OPERATIONS. (.5) Prerequisite: WTTI 204.** Facilities and processes used in attached growth systems. Topics include trickling filters, biological filters, rotating biological contactors, and operation of attached growth systems.

**WTTI 262. NUTRIENT REMOVAL PROCESSES IN WATER OPERATIONS. (1) Prerequisite: WTTI 203 or 204.** Equipment, structures, and design factors used in nutrient removal. Topics include nutrients and their effects on the environment, regulations, structured process models for nutrient removal, troubleshooting for full-scale nutrient removal facilities, and aquatic natural treatment systems.

**WTTI 263. INDUSTRIAL WASTEWATER PRETREATMENT PROCESSES. (.5) Prerequisite: WTTI 204.** Equipment, structures, and process involved in pretreatment of wastewater. Topics include regulations governing industrial pretreatment, troubleshooting, and maintaining pretreatment operations.

**WTTI 264. WASTEWATER RESIDUALS MANAGEMENT. (.5) Prerequisite: WTTI 259.** Equipment, structures, and processes used in wastewater residuals management. Topics include the stabilization, thickening, dewatering, drying, and composting of sludge, and biosolids reduction processes.

**WTTI 265. RECORD KEEPING AND REPORTING FOR WATER OPERATIONS. (.5) Prerequisite: WTTI 203 or 204.** Techniques for keeping effective records and reports for a water or wastewater utility. Topics include computer recordkeeping systems, equipment and maintenance records, plant operations data, procurement and inventory records, personnel records, and disposition of plan and system records.

**WTTI 266. CUSTOMER SERVICE AND PUBLIC RELATIONS IN WATER OPERATIONS. (.5) Prerequisite: WTTI 203 or 204.** Analysis of methods by which water and wastewater and wastewater utilities deal with customers and the public. Topics include the roles of water distribution personnel and informed employees in public relations, formal public relations programs, and general principles of customer inquiries and complaint investigation.

**WTTI 291. INTERNSHIP: UTILITY OPERATIONS. (3) Prerequisites: WTTI 200C. Requires placement by the WTI Program Coordinator and instructor's permission.** Internship in water/wastewaters operations. May be paid or unpaid. May be repeated one time for credit. (Grading: Pass/Fail)