

# Course Descriptions

The following is a guide to using WKU's course descriptions.

**Course Fees** – Enrollment in some courses requires payment of an additional fee. Refer to [www.wku.edu/bursar](http://www.wku.edu/bursar) for specific course fees.

## Course Numbering System

**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** Graduate courses, open only to graduate students unless exception approved.

**Credit Hours** – The number of credit hours is displayed in parentheses after the course title.

**Equivalent courses** – Equivalent courses have different subject area prefixes but the same course number, title, abbreviated title, credit hours, prerequisites and / or corequisites, grade type (e.g., A – F, Pass / Fail) and catalog course listings.

**Prerequisite** – A prerequisite represents prior specific or general academic knowledge, background, or student classification required in order to enroll in a specific course.

**Corequisite** – A corequisite is a requirement which must be fulfilled concurrently with another course, unless successfully completed as a prerequisite.

## Statewide General Education Codes

AH	Arts and Humanities
GE	General Elective
NS	Natural Sciences
OC	Oral Communication
QR	Quantitative Reasoning
SB	Social and Behavioral Sciences
SL	Science Lab
WC	Written Communication

## Statewide Developmental Codes

DE	Developmental English
DM	Developmental Mathematics
DR	Developmental Reading

## WKU Colonnade Codes (General Education) (Refer to the Colonnade section for more details.)

F-W1	Foundations: College Composition
F-W2	Foundations: Writing in the Disciplines
F-OC	Foundations: Human Communication
F-QR	Foundations: Quantitative Reasoning
F-AH	Foundations: Literary Studies
F-SB	Foundations: World History
E-AH	Explorations: Arts & Humanities
E-SB	Explorations: Social & Behavioral Sciences
E-NS	Explorations: Natural & Physical Sciences
E-SL	Explorations: Science Lab
K-SC	Connections: Social & Cultural
K-LG	Connections: Local to Global
K-SY	Connections: Systems

## ACG – ACCOUNTING SCHOOL OF PROFESSIONAL STUDIES

**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: MATH 109 or higher.* 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. **Course Fee**

**ACCT 201. INTRODUCTORY ACCOUNTING-MANAGERIAL. (3)** *Prerequisite: ACCT 200 or equivalent.* 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. **Course Fee**

**ACCT 300. INTERMEDIATE FINANCIAL ACCOUNTING I. (3)** *Prerequisites: ACCT 200 with a grade of "B" or higher.* 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. **Course Fee**

**ACCT 301. INTERMEDIATE FINANCIAL ACCOUNTING II. (3)** *Prerequisites: ACCT 201 with a grade of "B" or higher and ACCT 300 with a grade of "C" or higher.* A continuation of Intermediate Financial Accounting I with emphasis placed on certain specialized accounting subjects. Topics typically covered include, but are not limited to, long-term tangible and intangible assets, current and long-term liabilities, stockholders' equity, potentially dilutive securities and EPS. **Course Fee**

**ACCT 303. INTERMEDIATE FINANCIAL ACCOUNTING III. (3)** *Prerequisite: ACCT 301 with a grade of "C" or higher.* A continuation of Intermediate Financial Accounting II with emphasis placed on specialized accounting subjects. Topics typically covered include, but are not limited to, investments, revenue recognition, pensions, leases, accounting changes and error analysis, the statement of cash flows, and accounting for income taxes. **Course Fee**

**ACCT 310. MANAGERIAL COST ACCOUNTING. (3)** *Prerequisites: A grade of "B" or higher in both ACCT 200 and ACCT 201.* 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. **Course Fee**

**ACCT 312. ACCOUNTING INFORMATION SYSTEMS. (3)** *Prerequisites: ACCT 300 and ACCT 310 with grades of "C" or better in both courses; CIS 243.* 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 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. **Course Fee**

**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) **Course Fee**

**ACCT 401. BUSINESS COMBINATIONS AND RELATED TOPICS. (3)** *Prerequisite: ACCT 303 with a grade of "C" or higher.* 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. **Course Fee**

**ACCT 402. CONTEMPORARY ACCOUNTING ISSUES. (3)** *Prerequisites: ACCT 303 and ACCT 310 with grades of "C" or higher.* 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. **Course Fee**

## COURSE DESCRIPTIONS

**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. **Course Fee**

**ACCT 430. FEDERAL TAXATION – INDIVIDUALS. (3)** *Prerequisites: ACCT 301 with a grade of "C" or better.* 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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**ACCT 450. AUDITING AND ASSURANCE SERVICES. (3)** *Prerequisites: ACCT 303 and ACCT 312 with a grade 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. **Course Fee**

**ACCT 460. CPA PROBLEMS. (3)** *Prerequisites: ACCT 402 (or concurrent) with a grade of "C" or better.* 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. **Course Fee**

**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. **Course Fee**

**ACCT 499. SENIOR ASSESSMENT IN ACCOUNTING. (1)** *Prerequisites: Senior standing, enrolled in last regular semester of coursework. (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. **Course Fee**

### 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.

### AD – ADVERTISING

#### DEPARTMENT OF COMMUNICATION

**AD 210. SOFTWARE STUDIO FOR DESIGNERS. (3)** An introduction to the industry standard software to edit photos, create logos/branding packages, illustrations and layouts for print and interactive media. Equivalent to SJB 210. **Course Fee**

**AD 240. ADVERTISING IN A DIGITAL WORLD. (3)** Theory and practice of incorporating new technology into advertising campaigns. Emphasis on advertising strategy development utilizing interactive technology and computer presentation skills. **Course Fee**

**AD 300. RESEARCH IN ADVERTISING AND PUBLIC RELATIONS. (3)** *Prerequisites: AD 240 or COMM 200 or PR 255, or instructor permission; and MATH 109 or higher.* 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.

**AD 310. VISUAL CONCEPTS IN ADVERTISING. (3)** *Prerequisites: SJB / AD 210 and AD 240, or permission of instructor.* Analyze, create, and organize visual elements of persuasive and sponsored messages across media, targeting specific audiences for measurable impact.

**AD 330. BRANDING. (3)** *Prerequisite: AD 300 or COMM 300 or PS 301 or SOCL 302 with a grade of "C" or better or instructor permission.* Process of creating and projecting a distinctively authentic personality for a business. Covers traditional and digital methods of branding, with a focus on user experience.

**AD 349. ADVERTISING MEDIA. (3)** *Prerequisite: AD 300 or COMM 300 or PS 301 or SOCL 302 or instructor permission.* 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.

**AD 400. SPECIAL TOPICS IN ADVERTISING. (3)** *Prerequisites: Sophomore standing and COMM 200 or ENG 300, with a grade of "C" or better or instructor permission.* Various advertising topics not covered elsewhere in the curriculum. Repeatable once for a total of six hours.

**AD 410. PORTFOLIO. (3)** *Prerequisite: Permission of instructor.* For Advertising majors only. Students collaborate to research, create and promote websites and/or applications for commercial and non-commercial projects. Synthesizes all elements of user-experience design and branding. Equivalent to UX 410. **Course Fee**

**AD 415. STUDY ABROAD IN ADVERTISING. (3)** Advertising and culture in international and cross-cultural locations. Repeatable once for a total of 6 hours.

**AD 489. ADVERTISING INTERNSHIP OR PRACTICUM. (3)** *Prerequisites: 18 hours in the major and permission of instructor.* For program majors only. Professional-quality experience outside or inside the University for a fixed period of time. Follow-up with consist student reports and employer evaluation. Open only to Advertising majors. Course will be repeatable once for credit (only 3 hours will count for credit toward major).

**AD 495. INDEPENDENT STUDY IN ADVERTISING. (1-6)** *Prerequisites: COMM 200 with a grade of "C" or better, and permission of instructor.* Develops directed research in Advertising. Students must submit a written petition for faculty approval of the study in the semester prior to enrolling.

### 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 – AFRICAN AMERICAN STUDIES****DEPARTMENT OF DIVERSITY AND COMMUNITY STUDIES**

**AFAM 190. 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. *Colonnade E-SB | SB*

**AFAM 333. HIP HOP AND DEMOCRACY. (3)** *Prerequisite: AFAM 190 or permission of instructor.* Examines the various and sometimes contradictory views of Hip Hop as a musical form, a forum for political activism, and a voice for articulating and refiguring the democratic values of today's youth.

**AFAM 343. COMMUNITIES OF STRUGGLE. (3)** *21 hours of Foundations and Explorations Courses, or junior status, or permission of instructor.* Examines the relationship between distinct communities of struggle in Africa and the African Diaspora and the impact of African American social movements on a range of liberation struggles within this context. *Colonnade K-LG*

**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.

**AFAM 353. RADICAL BLACKNESS. (3)** Interdisciplinary study of contemporary Black radical thought through an examination of African American material culture, i.e. symbols, art, music, literature, performance, and cultural studies.

**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.

**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.

**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.

**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.

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

**AFAM 393. AFRICAN AMERICAN LITERATURE. (3)** *Prerequisite: Colonnade Category F-AH.* Study of literature by African American writers. Equivalent to ENG 393.

**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 ANTH 410 and FLK 410.

**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 experience, present or past.

**AGEC – AGRICULTURAL ECONOMICS****DEPARTMENT OF AGRICULTURE**

**AGEC 160. INTRODUCTION TO AGRIBUSINESS AND AGRICULTURAL ENTREPRENEURSHIP. (3)** Overview of various aspects of agribusiness and agricultural economics with emphasis on entrepreneurial skills. Technical, managerial, and professional qualifications for agribusiness-related careers.

**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 261. AGRICULTURAL ACCOUNTING. (3)** Follows Farm Financial Standards Council guidelines for agricultural producers to analyze farm/ranch transactions & accounts, make journal & ledger entries, and produce farm financial statements.

**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: CSCI 145C 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.

**AGEC 391. SURVEY OF COMMODITY FUTURES AND OPTIONS. (3)** *Prerequisites: AGECE 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: AGECE 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: AGECE 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: AGECE 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: AGECE 160 or ECON 150 or ECON 202, or ECON 203.* 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 471. AGRIBUSINESS ENTREPRENEURIAL SYSTEM. (3)** *Prerequisites or corequisites: At least junior status or instructor's authorization.* Connecting essential concepts/components learned from various disciplines to develop entrepreneurial skills in the agriculture industry in order to create innovative agriculture-related ventures and manage them profitably.

**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 200. FOUNDATIONS OF AGRICULTURAL EDUCATION. (1)** History and foundation of agricultural education and career and technical education. Includes tools to promote, oversee, and evaluate agricultural education activities in grades 7-12.

## COURSE DESCRIPTIONS

### AGED 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. Equivalent to EDU 250.

### AGED 300. YOUTH DEVELOPMENT FOR AGRICULTURAL EDUCATORS. (3)

*Prerequisite:* AGED 250 or MGE 275. Prepares future secondary school agricultural educators to provide academic advisement and leadership in youth development programs in secondary schools.

### AGED 470. METHODS OF TEACHING IN AGRICULTURAL EDUCATION. (3)

*Prerequisites:* AGED 250 (EDU 250), SPED 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), SPED 330, AGRI 398, PSY 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. **Course Fee**

### 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)

*Prerequisites:* 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. **Course Fee**

**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 176. AGRICULTURE SAFETY. (2)** Topics include the safe handling of hand tools, agricultural machinery, farm animals, pesticides, and fertilizers, with emphasis on hazard awareness, workplace regulations, and basic intervention strategies. Students will be trained in CPR (not certified) and other quick response first aid techniques.

**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 326. PRECISION AGRICULTURE. (3) *Prerequisites:* AGRO 350 or consent of instructor.** Utilization of remote sensing, soil sampling and information management tools to increase agricultural production, optimize returns, and preserve natural resources. Satellite, informational and geospatial technologies are examined within the context of production agriculture.

**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, 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 115 or MATH 116, 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 425. APPLIED HYDRAULICS AND PNEUMATICS. (3) *Prerequisites:* MATH 115 or MATH 116.** Lecture and Lab. Study of the fundamental principles of hydraulic and pneumatic systems and their application to mobile and stationary agriculture and construction machinery.

**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.

**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.

**Colonnade E-SB | SB**

**AGRI 175. UNIVERSITY EXPERIENCE – AGRICULTURE. (1) *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.

*Colonnade E-NS | NS.*

**AGRI 291. INTRODUCTION TO DATA ANALYSIS AND INTERPRETATION. (3)**  
*Prerequisites: MATH 115 or 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)** *Prerequisites / Corequisites: 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 323 WINE FUNDAMENTALS. (3)** Agricultural and historical origins of wine, including important grape varieties and principles of fermentation. Major wine-producing regions and fundamentals of wine marketing are also explored.

**AGRI 355. BIOTECHNOLOGY IN AGRICULTURE. (3)** *Prerequisites: BIOL 120 / 121 and either AGRO 110 or ANSC 140.* Introduction to current biotechnologies used in agriculture including genetic modification of crop plants and animals, genetically modified foods, fermentation biotechnology, pharming and other current topics.

**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 397. AGRICULTURE CAREER PLANNING. (1)** *Prerequisite: Junior standing in agriculture or permission of the instructor.* Job search preparation, including completion of a resume, cover letter and mock interview. Options for obtaining graduate education and internship experience are also explored. Outside speakers from the agriculture industry are included.

**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.

**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 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: MATH 115 or higher and junior standing.* 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. **Course Fee**

**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 or BIOL 120.* 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 CHEM 120.* Effects of various physiological and environmental factors on crop production are discussed.

**AGRO 409. WEED SCIENCE. (2)** *Prerequisites: CHEM 107 or equivalent; AGRO 320, AGRO 350.* *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 418. PLANT PATHOLOGY. (3).** *Prerequisites: AGRO 110, BIOL 120 and AGRO 350 or permission of instructor.* Introduction to common plant pathogens and diseases of agronomically important field and forage crops, turf, vegetables and ornamentals. Topics include control measures, newly discovered diseases, and plant-pathogen interactions.

**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 320 and AGRO 350.* Distribution, improvement, morphology, culture, harvesting and utilization of field crops are presented.

#### SOIL SCIENCE

**AGRO 350. SOILS. (3)** *Prerequisites: CHEM 105, 106, or CHEM 120 and CHEM 121.* 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.

**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)** *Prerequisite: AGRO 350.* *Corequisite: AGRO 456.* 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)** *Prerequisite: AGRO 350 and permission of instructor.* *Corequisite: AGRO 458.* Soil origin; classification schemes; profile description, mapping and interpretation of soil survey information emphasizing Kentucky soils, are discussed.

## COURSE DESCRIPTIONS

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**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 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 parashioners. 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 AND MANUFACTURING SCIENCES SCHOOL OF ENGINEERING AND APPLIED SCIENCES

**AMS 101. INTRODUCTORY AMS RESEARCH (1-6)** *Prerequisite: Enrollment in a program of study within the Architectural and Manufacturing Sciences Department or consent of instructor.* An introduction to research projects and problem-solving techniques in various AMS fields. May be repeated to a maximum of six hours.

**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 120. BASIC ELECTRICITY. (3)** *Prerequisite: MATH 116 with a grade of "C" or better, or MATH 117 or better.* Basic concepts of AC and DC current, various types of circuits, electron theory and electrical laws. **Course Fee**

**AMS 120-M1. BASIC ELECTRICITY MODULE 1. (1)** *Prerequisite: Eligibility for MATH 116.* Basic concepts of AC and DC current, various types of circuits, electron theory and electrical laws.

**AMS 120-M2. BASIC ELECTRICITY MODULE 2. (1)** *Prerequisite: Eligibility for AMS 120-M1.* Basic concepts of AC and DC current, various types of circuits, electron theory and electrical laws. **Course Fee**

**AMS 120-M3. BASIC ELECTRICITY MODULE 3. (1)** *Prerequisite: Eligibility for AMS 120-M2.* Basic concepts of AC and DC current, various types of circuits, electron theory and electrical laws.

**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 ARCHITECTURE. (3).** 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. **Course Fee**

**AMS 205. CADD FOR MANUFACTURING. (3)** *Prerequisites: MATH 116 with a grade of "C" or better, or MATH 117 or better.* 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 205-M1. CADD FOR MANUFACTURING MODULE 1. (1)** 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.

**AMS 205-M2. CADD FOR MANUFACTURING MODULE 2. (1)** *Prerequisite: AMS 205-M1.* 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 205-M3. CADD FOR MANUFACTURING MODULE 3. (1)** *Prerequisite: AMS 205-M2.* 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.

**AMS 210. TECHNOLOGY AND SOCIETAL IMPACT (3)** A study of technology and the west through Great Britain's Industrial Revolution (c. 1850) and the expansion and diffusion of Western Industrial Technology (c. 1850 to present). **Course Fee**

**AMS 217. INDUSTRIAL MATERIALS. (3)** *Prerequisite: MATH 116 with a grade of "C" or better, or MATH 117 or better.* 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 217-M1. INDUSTRIAL MATERIALS MODULE 1. (1)** *Prerequisite: MATH 116 or higher.* 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.

**AMS 217-M2. INDUSTRIAL MATERIALS MODULE 2. (1)** *Prerequisite: AMS 217-M1.* 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 217-M3. INDUSTRIAL MATERIALS MODULE 3. (1)** *Prerequisite: AMS 217-M2.* 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.

**AMS 227. INTRODUCTION TO MANUFACTURING METHODS. (3)** *Prerequisites: MATH 115 or MATH 116 with a grade of C or better in either; or MATH 117 or higher with a passing grade.* A descriptive study of manufacturing processes using production equipment with laboratory experiences in forming and separating processes. **Course Fee**

**AMS 227-M1. INTRODUCTION TO MANUFACTURING METHODS MODULE 1. (1)** A descriptive study of manufacturing processes using production equipment with laboratory experiences in forming and separating processes.

**AMS 227-M2. INTRODUCTION TO MANUFACTURING METHODS MODULE 2. (1)** *Prerequisite: AMS 227-M1.* A descriptive study of manufacturing processes using production equipment with laboratory experiences in forming and separating processes. **Course Fee**

**AMS 227-M3. INTRODUCTION TO MANUFACTURING METHODS MODULE 3. (1)** *Prerequisite: AMS 227-M2.* A descriptive study of manufacturing processes using production equipment with laboratory experiences in forming and separating processes.

**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)** 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)** 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 with a grade of "C" or better, or MATH 117 or better. 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 271-M1. INDUSTRIAL STATISTICS MODULE ONE. (1)** *Prerequisites:* MATH 116 or equivalent. Introduction to basic statistics used in industrial settings. Measurements, scales, data collection and organization, probability and discrete distributions, measure of central tendency, measures of dispersions, and continuous distributions.

**AMS 271-M2. INDUSTRIAL STATISTICS MODULE TWO. (1)** *Prerequisites:* AMS 271 M1 with a grade of B or better. Statistical Process Control (SPC) for both variable and attribute data. Xbar, R, S, p, np, c, and u charts, and variable subgroup data applications. Process analysis and capability. Individuals charts.

**AMS 271-M3. INDUSTRIAL STATISTICS MODULE THREE. (1)** *Prerequisites:* AMS 271 M2 with a grade of B or better. Acceptance sampling plans and corresponding OC curves. Consumer/producer relationship. Introductory inferential statistics including confidence intervals, hypothesis, z tests, and ANOVA. Awards, certification, and quality.

**AMS 273. ARCHITECTURAL DETAILING. (3)** *Prerequisite:* AMS 263 with a grade of "C" or better. Architectural detailing in terms of function, contractibility, and aesthetics. A transition from architectural ideas to build 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. BUILDING STRUCTURES. (3)** *Prerequisites:* MATH 117 or higher. 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. INTRODUCTION TO FOOD SCIENCE AND TECHNOLOGY. (3)** *Prerequisites:* CHEM 105. A comprehensive introduction to the basic concepts and principles of food science and the role of science in food processing and manufacturing. **Course Fee**

**AMS 303. FOOD LAWS AND REGULATIONS. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. 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 Colonnade K-LG**

**AMS 305. BUILDING CODES. (3)** *Prerequisite:* AMS 261. 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. 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. ERGONOMICS AND SAFETY. (3)** *Prerequisite:* MATH 116. People-machine interaction, including an introduction to the relevant underlying human sciences. The interaction of how these issues relate to safety in the workplace will be elaborated upon. **Course Fee**

**AMS 310-M1. WORK DESIGN / ERGONOMICS MODULE 1. (1)** *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.

**AMS 310-M2. WORK DESIGN / ERGONOMICS MODULE 2. (1)** *Prerequisite:* AMS 310-M1. 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 310-M3. WORK DESIGN / ERGONOMICS MODULE 3. (1)** *Prerequisite:* AMS 310-M2. 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.

**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 325. SURVEY OF BUILDING SYSTEMS. (3)** *Prerequisites:* AMS 163, 261 and MATH 117 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:* MATH 116 with a grade of "C" or better, or MATH 117 or better. 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 328-M1. ROBOTICS AND MACHINE VISION MODULE 1. (1)** Introduction to capabilities and limitations of robotic and machine vision systems, as well as fundamentals of programming. Laboratory activities are focused toward manufacturing applications.

**AMS 328-M2. ROBOTICS AND MACHINE VISION MODULE 2. (1)** *Prerequisite:* AMS 328-M1. 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 328-M3. ROBOTICS AND MACHINE VISION MODULE 3. (1)** *Prerequisite:* AMS 328-M2. Introduction to capabilities and limitations of robotic and machine vision systems, as well as fundamentals of programming. Laboratory activities are focused toward manufacturing applications.

**AMS 329. INTRODUCTION TO CAREER AND TECHNICAL 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 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 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. 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. Travel to WKU Center for Research and Development required.

**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.

## COURSE DESCRIPTIONS

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**AMS 340. MANUFACTURING OPERATIONS I. (3)** *Prerequisites:* 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:* MATH 116 with a grade of "C" or better, or MATH 117 or better. Survey of methods for designing products for improved quality and manufacturability in industry and designing manufacturing processes for improved reliability. **Course Fee**

**AMS 342-M1. MANUFACTURING OPERATIONS MODULE 1. (1)** *Prerequisite:* AMS 271 or AMS 271-M3. Survey of methods for designing products for improved quality and manufacturability in industry and designing manufacturing processes for improved reliability.

**AMS 342-M2. MANUFACTURING OPERATIONS MODULE 2. (1)** *Prerequisite:* AMS 342-M1. Survey of methods for designing products for improved quality and manufacturability in industry and designing manufacturing processes for improved reliability. **Course Fee**

**AMS 342-M3. MANUFACTURING OPERATIONS MODULE 3. (1)** *Prerequisite:* AMS 342-M2. Survey of methods for designing products for improved quality and manufacturability in industry and designing manufacturing processes for improved reliability.

**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 343-M1. AUTOMATED SYSTEMS MODULE 1. (1)** *Prerequisite:* AMS 120 or AMS 120-M3. 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.

**AMS 343-M2. AUTOMATED SYSTEMS MODULE 1. (1)** *Prerequisite:* AMS 343-M1. 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. **Course Fee**

**AMS 343-M3. AUTOMATED SYSTEMS MODULE 1. (1)** *Prerequisite:* AMS 343-M2. 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.

**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:* MATH 116 with a grade of "C" or better, or MATH 117 or better. 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 352-M1. FOOD PROCESSING: UNIT OPERATIONS MODULE 1. (1)** An overview of unit operations and processing techniques used in food processing industry. Topics include thermal processing, dehydration, irradiation, enzyme technology, separation and concentration, evaporation and distillation, and high-pressure and minimal processing methods.

**AMS 352-M2. FOOD PROCESSING: UNIT OPERATIONS MODULE 2. (1)** *Prerequisite:* AMS 352-M1. 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 352-M3. FOOD PROCESSING: UNIT OPERATIONS MODULE 3. (1)** *Prerequisite:* AMS 352-M2. 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:* 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. **Course Fee**

**AMS 356-M1. SYSTEMS DESIGN AND OPERATION MODULE 1. (1)** *Prerequisites:* AMS 271 or AMS 271-M3. 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.

**AMS 356-M2. SYSTEMS DESIGN AND OPERATION MODULE 2. (1)** *Prerequisites:* AMS 356-M1. 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. **Course Fee**

**AMS 356-M3. SYSTEMS DESIGN AND OPERATION MODULE 3. (1)** *Prerequisites:* AMS 356-M2. 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.

**AMS 363. ARCHITECTURE DOCUMENTATION II. (3)** *Prerequisites:* AMS 263 with a grade of "C" or better; AMS 273 with a grade of "C" or better, AMS 305. Planning and producing commercial construction drawings. Commercial construction standards and codes; building materials research and specification. **Course Fee**

**AMS 367. SUPERVISED WORK EXPERIENCE IN INDUSTRY. (1-6)** *Prerequisite:* Advisor approval required. Supervised employment in industry. Written reports required. **Course Fee**

**AMS 368. PROBLEM SOLVING. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. An application oriented introduction to basic analytical tools for the solution of practical problems. Focusing on developing qualitative and quantitative literacy and analytic skills, the emphasis will be on data analysis, graphic communication and simple experiments applied to real problems. **Course Fee | Colonnade K-SY**

**AMS 368-M1. PROBLEM SOLVING MODULE 1. (1)** *Prerequisite:* Junior status. An application oriented introduction to basic research of practical industrial problems. Development, information gathering, data collection, and literature review on real technological problems.

**AMS 368-M2. PROBLEM SOLVING MODULE 2. (1)** *Prerequisite:* AMS 368-M1 with a grade of B or better. Introduction to basic analytical tools applied to practical industrial problems. Critical evaluation, assessment, scientific analysis, graphical representation and root cause exploration of real technological problems.

**AMS 368-M3. PROBLEM SOLVING MODULE 3. (1)** *Prerequisite:* AMS 368 M2 with a grade of B or better. Presentation of solutions for practical industrial problems. Comprehensive reporting and presentation of multiple approaches to real technological problems using scientific justification.

**AMS 369. ARCHITECTURAL DESIGN STUDIO I. (4)** *Prerequisite:* 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 370-M1. COMPUTER NUMERICAL CONTROL MODULE 1. (1)** *Prerequisite:* AMS 227 or AMS 227-M3. Computer-aided manufacturing techniques including manual and computer-assisted numerical control. Students program and operate CNC machining centers.

**AMS 370-M2. COMPUTER NUMERICAL CONTROL MODULE 2. (1)** *Prerequisite:* AMS 370-M1. Computer-aided manufacturing techniques including manual and computer-assisted numerical control. Students program and operate CNC machining centers. **Course Fee**

**AMS 370-M3. COMPUTER NUMERICAL CONTROL MODULE 3. (1)** *Prerequisite:* AMS 370-M2. Computer-aided manufacturing techniques including manual and computer-assisted numerical control. Students program and operate CNC machining centers.

**AMS 371. QUALITY ASSURANCE. (3)** *Prerequisite:* MATH 116 with a grade of "C" or better, or MATH 117 or better. 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 371-M1. QUALITY ASSURANCE MODULE 1. (1)** A study of quality assurance techniques. Application of Statistical Process Control (SPC), acceptance sampling, military standards 105D & 414. Quality organizations and standards.

**AMS 371-M2. QUALITY ASSURANCE MODULE 2. (1)** 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 371-M3. QUALITY ASSURANCE MODULE 3. (1)** A study of quality assurance techniques. Application of Statistical Process Control (SPC), acceptance sampling, military standards 105D & 414. Quality organizations and standards.

**AMS 372. COMMERCIAL ARCHITECTURAL FLOOR PLANNING. (3)** *Prerequisite:* AMS 263. 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)** 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 369. 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)** *Prerequisites:* 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 and AMS major and MATH 116 with a grade of "C" or better. 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 390-M1. PROJECT MANAGEMENT MODULE 1. (1)** *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.

**AMS 390-M2. PROJECT MANAGEMENT MODULE 2. (1)** *Prerequisite:* AMS 390-M1. 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 390-M3. PROJECT MANAGEMENT MODULE 3. (1)** *Prerequisite:* AMS 390-M2. 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.

**AMS 394. LEAN AND SUPPLY CHAIN SYSTEMS (3)** *Prerequisite:* MATH 116 with a grade of "C" or better, or MATH 117 or better. Applications of lean and supply chain system principles across disciplines. This is the enhancement of customer value and the elimination and reduction of all forms of waste from supplier to end user. **Course Fee**

**AMS 394-M1. LEAN MANUFACTURING MODULE 1. (1)** Introduction to the production system and the role of inventory, market characterization, aggregate planning, lean manufacturing and the just-in-time philosophy.

**AMS 394-M2. LEAN MANUFACTURING MODULE 2. (1)** *Prerequisite:* AMS 394-M1. 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 394-M3. LEAN MANUFACTURING MODULE 3. (1)** *Prerequisite:* AMS 394-M2. Introduction to the production system and the role of inventory, market characterization, aggregate planning, lean manufacturing and the just-in-time philosophy.

**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:* MATH 116 with a grade of "C" or better, or MATH 117 or better. Introduction to supply chain management and risk pooling, logistics network configuration, the value of information, customer value and decision support systems. **Course Fee**

**AMS 396-M1. INTRODUCTION TO SUPPLY CHAIN MANAGEMENT MODULE 1. (1)** Introduction to supply chain management and risk pooling, logistics network configuration, the value of information, customer value and decision support systems.

**AMS 396-M2. INTRODUCTION TO SUPPLY CHAIN MANAGEMENT MODULE 2. (1)** *Prerequisite:* AMS 396-M1. Introduction to supply chain management and risk pooling, logistics network configuration, the value of information, customer value and decision support systems. **Course Fee**

**AMS 396-M3. INTRODUCTION TO SUPPLY CHAIN MANAGEMENT MODULE 3. (1)** *Prerequisite:* AMS 396-M2. Introduction to supply chain management and risk pooling, logistics network configuration, the value of information, customer value and decision support systems.

**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**

## COURSE DESCRIPTIONS

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**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 430-M1. TECHNOLOGY MANAGEMENT / SUPERVISION / TEAM BUILDING MODULE 1. (1)** *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.

**AMS 430-M2. TECHNOLOGY MANAGEMENT / SUPERVISION / TEAM BUILDING MODULE 2. (1)** *Prerequisite:* AMS 430-M1. 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 430-M3. TECHNOLOGY MANAGEMENT / SUPERVISION / TEAM BUILDING MODULE 3. (1)** *Prerequisite:* AMS 430-M2. 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.

**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)** *Prerequisites:* 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 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:* AMS 273. 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)** *Prerequisites:* AMS 363, 369, 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 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 490. SENIOR RESEARCH. (3)** *Prerequisite:* Consent of the instructor. Students work on capstone research projects utilizing skills and knowledge from prior courses in the program. Projects performed, when possible, for a specific client or local industry. Lecture and laboratory. **Course Fee**

**AMS 490A. SENIOR RESEARCH FOR ARCHITECTURAL SCIENCES. (3)** *Prerequisite:* AMS 363 with a grade of "C" or better, AMS 488 with a grade of "C" or better. Students work on capstone research projects utilizing skills and knowledge from prior courses in the Architectural Sciences program. Projects in this course will simulate real life projects encountered in industry.

**AMS 490B. SENIOR RESEARCH FOR CONSTRUCTION MANAGEMENT. (3)** *Prerequisite:* CM 250 with a grade of "C" or better, CM 363 with a grade of "C" or better, AMS 390 with a grade of "C" or better. *Prerequisite / Corequisite:* CM 462. Students work on capstone research projects utilizing skills and knowledge from prior courses in the Construction Management program. Projects in this course will simulate real life projects encountered in industry.

**AMS 490E. SENIOR RESEARCH FOR MANUFACTURING ENGINEERING TECHNOLOGY. (3)** *Prerequisite:* AMS 356 with a grade of "C" or better, AMS 390 with a grade of "C" or better, AMS 370 with a grade of "C" or better. *Prerequisite / Corequisite:* AMS 394. Students work on capstone research projects utilizing skills and knowledge from prior courses in the Manufacturing Engineering Technology program. This is a lecture lab course that will incorporate all aspects of manufacturing in a simulated facility.

**AMS 490F. SENIOR RESEARCH FOR TECHNOLOGY MANAGEMENT. (3)** *Prerequisite:* AMS 356 with a grade of "C" or better, AMS 390 with a grade of "C" or better, AMS 370 with a grade of "C" or better. *Prerequisite / Corequisite:* AMS 394. Students work on capstone research projects utilizing skills and knowledge from prior courses in the Technology Management program. Projects performed when possible will be for a specific client or industry. This course will require an approved course proposal prior to being able to register.

**AMS 490-M1. SENIOR RESEARCH MODULE 1. (1)** *Prerequisite:* Consent of the instructor. Students work on research projects utilizing skills and knowledge from prior courses in the program. Projects performed, when possible, for local industry.

**AMS 490-M2. SENIOR RESEARCH MODULE 2. (1)** *Prerequisite:* AMS 490-M1 or consent of the instructor. Students work on research projects utilizing skills and knowledge from prior courses in the program. Projects performed, when possible, for local industry. **Course Fee**

**AMS 490-M3. SENIOR RESEARCH MODULE 3. (1)** *Prerequisite:* AMS 490-M2 or consent of the instructor. Students work on research projects utilizing skills and knowledge from prior courses in the program. Projects performed, when possible, for local industry

**AMS 495. ACOUSTIC GUITAR CONSTRUCTION. (4)** *Prerequisite:* AMS 103. Dealing 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**

### ANSC – ANIMAL SCIENCE DEPARTMENT OF AGRICULTURE

**ANSC 130. INTRODUCTION TO HORSE SCIENCE. (2)** *Corequisite:* ANSC 131. An introductory study of equine science including an overview of the horse industry, anatomy, management, reproduction, nutrition, genetics, behavior and disease.

**ANSC 131. INTRODUCTION TO HORSE SCIENCE LABORATORY. (1)** *Corequisite:* ANSC 131. Laboratory study of equine science including an overview of the horse industry, anatomy, management, reproduction, nutrition, genetics, behavior and disease. **Course Fee**

**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. **Course Fee**

**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**

**ANSC 240. LIVESTOCK MANAGEMENT. (2)** *Prerequisite:* ANSC 140.  
*Corequisite:* ANSC 241. 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. **Course Fee**

**ANSC 330. HORSE PRODUCTION. (2)** *Prerequisites:* ANSC 140 and 345 or approval of instructor. *Corequisite:* ANSC 331. 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. **Course Fee**

**ANSC 333. HORSE TRAINING. (2)** *Prerequisites:* ANSC 330 / 331 or approval of instructor. *Corequisite:* ANSC 334. 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 Fee**

**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)** *Prerequisites:* 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)** *Prerequisites:* ANSC 140 and 345.  
*Corequisite:* ANSC 432. 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)**  
*Prerequisites:* ANSC 140 and BIOL 120. *Corequisite:* ANSC 438. 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. **Course Fee**

**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)** *Prerequisites:* ANSC 140 and 345.  
*Corequisite:* ANSC 443. 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)** *Prerequisites:* ANSC 140 and 345.  
*Corequisite:* ANSC 445. 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)** *Prerequisites:* ANSC 140, AGRI 291 and BIOL 120. *Corequisite:* ANSC 447. 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.  
**Colonnade E-SB | SB**

**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.

**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.  
**Colonnade E-SB | SB**

**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 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.

## COURSE DESCRIPTIONS

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**ANTH 305. PALEOANTHROPOLOGY: HUMAN ORIGINS AND EVOLUTION. (3)**  
*Prerequisites: ANTH 130 or BIOL 113 or 131 or GEOL 112 or junior standing, 21 hours of Foundations and Explorations Courses or junior status.* Scientific examination of the origins and bio cultural evolution of humans, emphasizing evolutionary theory, evidence for human evolution, long-term trends, important fossil finds and sites, taxonomic classifications, and phylogenetic relationships.  
**Colonnade K-SY**

**ANTH 316. THE ARCHAEOLOGY OF ENVIRONMENTAL CHANGE. (3)**  
*Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* The archaeological study of the impact of the environment on humans and of humans on the environment. **Colonnade K-LG**

**ANTH 333. THE ARCHAEOLOGY OF ANCIENT CHINA. (3)** Culture-historical overview of Ancient China from the Paleolithic to Qin Empire focusing on major anthropological themes in Chinese archaeology and world prehistory.

**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.

**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.

**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)** Study 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. Equivalent to FLK 341.

**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.

**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 AFAM / FLK 350.

**ANTH 360. APPLIED ANTHROPOLOGY – UNDERSTANDING AND ADDRESSING CONTEMPORARY HUMAN PROBLEMS. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* History and development of applied anthropology emphasizing identification of and solutions to social, economic, ecological, and technological problems. **Colonnade K-SC**

**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 388. FOODWAYS. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Exploration of the relationship between food and culture. Equivalent to FLK 388. **Colonnade K-LG**

**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. 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 AFAM 410 and FLK 410.

**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.

**ANTH 450. MODERN HUMAN BIOLOGICAL VARIATION. (3)** *Prerequisites: MATH 109 or MATH 116 and one of the following: ANTH 125, BIOL 316, BIOL 327.* 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.

**ANTH 499. SENIOR SEMINAR. (1)** *Prerequisites: ANTH 120, 125, 130, 135, and any other course in ANTH. Additional enrollment requirements: Junior or senior standing, restricted to anthropology majors.* Seminar on anthropological concepts and theories, current topics and developments in the discipline, anthropology careers and graduate programs, and professional ethics. To be taken in the last year of the student's program of study in anthropology.

#### ARBC - ARABIC DEPARTMENT OF MODERN LANGUAGES

**ARBC 101. ELEMENTARY ARABIC I. (3)** Prepares students to communicate verbally and in writing in simple routine tasks, to understand written or spoken communication on everyday topics and to develop cultural awareness.

**ARBC 102. ELEMENTARY ARABIC II. (3).** *Prerequisite: ARBC 101 or equivalent.* Continuation of the development of communication skills on everyday topics and of cultural insights. *Course Fee | Fulfills World Language with a grade of C or better.*

**ARBC 201. INTERMEDIATE ARABIC I. (3)** *Prerequisite: ARBC 102 or equivalent.* 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. *Fulfills World Language with a grade of C or better.*

**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, building of vocabulary, and on presentational modes of speaking and writing. *Fulfills World Language with a grade of C or better.*

**ARBC 301. ADVANCED ARABIC I. (3)** *Prerequisite: ARBC 202 or equivalent.* A continued expansion of interpersonal communication skills. Emphasis on improved comprehension, mastery of more complex linguistic structures, and speaking and writing on culturally specific texts and media. *Fulfills World Language with a grade of C or better.*

**ARBC 302. ADVANCED ARABIC II. (3)** *Prerequisite: ARBC 301 or equivalent.* A continued expansion of interpersonal communication skills. Emphasis on advanced comprehension, speaking and writing on culturally specific texts and mastery of more complex expressions and linguistic structures. *Fulfills World Language with a grade of C or better.*

**ARBC 306. EXPERIENCING ARABIC ABROAD. (1-3)** *Prerequisite: Permission of instructor. Corequisite: Enrollment in supervised language study while abroad.* Supervised language and cultural studies accomplished during a study abroad program. Students will receive transferable credit for language study done during the study abroad program with the approval of instructor. May be repeated once for a maximum of six credit hours. *Fulfills World Language with a grade of C or better.*

**ARBC 310. STRUCTURE OF THE ARABIC LANGUAGE. (3)** *Prerequisite: ARBC 102 or two years of high school Arabic. Open to Arabic majors and minors only.* Introduction to Arabic morphology and syntax with an emphasis on applying this knowledge to improving reading comprehension strategies.

**ARBC 321. COLLOQUIAL ARABIC. (3)** *Prerequisite: ARBC 302 or equivalent.* A course in pronunciation, comprehension and oral expression in colloquial Arabic. Exercises focus on navigating common situations of daily life in an Arabic speaking country. *Fulfills World Language with a grade of C or better.*

**ARBC 322. ARABIC TRANSLATION STUDIES. (3)** *Prerequisite: ARBC 302 or equivalent.* A concentrated study of the intricacies and methods of Arabic translation work (both Arabic to English and English to Arabic) and the responsibilities of the professional translator. *Fulfills World Language with a grade of C or better.*

**ARBC 323. ARABIC CIVILIZATION I. (3)** *Prerequisite: ARBC 302 or equivalent.* A survey course in early Arab history, culture and religion, from the pre-Islamic period through the eighteenth century Taught in Arabic. *Fulfills World Language with a grade of C or better.*

**ARBC 324. ARABIC CIVILIZATION II. (3)** *Prerequisite: ARBC 302 or equivalent.* A survey course in later Arab history, culture and religion, from the eighteenth century to the present. Taught in Arabic. *Fulfills World Language with a grade of C or better.*

**ARBC 389. INTERNSHIP IN ARABIC. (1-3)** *Prerequisite: Permission of the instructor.* Supervised work using Arabic in a professional setting. Only open to Arabic majors or minors. Repeatable up to six credit hours. *Fulfills World Language with a grade of C or better.*

**ARBC 418. BUSINESS ARABIC. (3)** *Prerequisite: ARBC 302 or three years of high school Arabic.* Develops the specific vocabulary and communication skills, as well as cultural knowledge essential for a career in business in the Arab world.

**ARBC 435. ARABIC LITERATURE. (3)** *Prerequisite: ARBC 302 or equivalent.* Reading of Arabic texts from the pre-Islamic period to the 20<sup>th</sup> century representing the major genres and movements of Arabic literature. *Fulfills World Language with a grade of C or better.*

**ARBC 436. QUR'ANIC ARABIC. (3)** *Prerequisite: ARBC 302 or three years of high school Arabic. Open to Arabic majors and minors only.* Detailed reading and analysis of selected suras from the Qur'an in Arabic, with a focus on the distinctive grammar, vocabulary and structure of Qur'anic Arabic.

**ARBC 437. ADVANCED MEDIA ARABIC. (3)** *Prerequisite: ARBC 302 or equivalent.* Study of Arabic media reporting in written, audio and video formats, focusing on political, economic and security issues in their cultural contexts. *Fulfills World Language with a grade of C or better.*

**ARBC 438. TOPICS IN ARABIC MEDIA. (3)** *Prerequisite: ARBC 302 or equivalent.* An advanced study of Arabic media reporting in written, audio and video formats, focusing on social, ideological and cultural issues in their cultural contexts. *Fulfills World Language with a grade of C or better.*

**ARBC 435. TOPICS IN ARABIC LITERATURE AND CULTURE. (3)** *Prerequisite: ARBC 302 or equivalent.* Reading of Arabic texts on selected themes of cultural and literary interest. Topics may change with each iteration of the course. *Fulfills World Language with a grade of C or better.*

**ARBC 357. ARABIC FOR INTERNATIONAL SERVICE. (3)** *Prerequisite: ARBC 302 or three years of high school Arabic.* Develops the specific vocabulary and communication skills essential for a career in diplomacy, government service, or humanitarian service in the Arab world.

**ARBC 499. ADVANCED STUDIES IN ARABIC. (1-4)** *Prerequisite: Permission of the instructor.* Guided independent study in culture, language, or literature of the Arab world. May be used with prior consent of full-time program faculty for work conducted during study abroad. Repeatable for a maximum of six credit hours. *Fulfills World Language with a grade of C or better.*

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

**ARC 100. INTRODUCTION TO ASIAN STUDIES. (3)** Survey of the cultures of one or more regions in Asia. *Colonnade E-AH | AH*

**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. (1)** *Prerequisites: Senior standing and major in Asian religions and cultures or consent of instructor.* A capstone designed for Asian religions and cultures majors. Students will complete projects that demonstrate their research, writing, and analytical skills.

#### ART DEPARTMENT OF ART (ART)

##### ART HISTORY

**ART 100. ART APPRECIATION. (3)** An introductory study of the visual arts. *Colonnade E-AH | AH*

**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. *Colonnade E-AH | AH*

**ART 106. HISTORY OF ART SINCE 1300. (3)** A selective chronological study of the major visual arts from renaissance through modern times. *Colonnade E-AH | AH*

**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.

**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.

## COURSE DESCRIPTIONS

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**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 the 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 317 ART AND POWER. (3)** *Prerequisites:* 21 hours of Foundations and Explorations Courses, or junior status. A systematic consideration of the means through which the visual arts embody and promote ideologies and shape human societies. **Colonnade K-SY**

**ART 318 ART AND LANDSCAPE. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses or junior status. Critical examination of the theme of landscape in the visual arts. **Colonnade K-LG**

**ART 325. ART OF ASIA, AFRICA, AND THE AMERICAS. (3)** *Prerequisites:* ART 105 or 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)** *Prerequisite:* 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)** *Prerequisite:* 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.

**ART 494. SEMINAR IN ART HISTORY. (3)** *Prerequisites:* ART 105, 106, and one other art history course. 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. May be repeated once for a total of six hours.

### 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 or 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. **Course Fee**

**ART 411. FOUNDATIONS OF ART EDUCATION AND METHODS II. (3)** *Prerequisites:* EDU 250, PSY 310, SPED 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. **Course Fee**

**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. **Course Fee**

### 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. **Course Fee**

**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. **Course Fee**

**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**

### COMPUTER ANIMATION COURSES

**ART 244. COMPUTER ANIMATION I. (3)** *Prerequisites:* Permission of instructor. This introductory course initiates students to the creative possibilities of 3D computer animation platform.

**ART 344. COMPUTER ANIMATION II. (3)** *Prerequisites:* ART 244 or permission of instructor. Designed for students who are experienced with basic 3D animation to introduce more sophisticated concepts and techniques of 3D computer animation.

**ART 444. COMPUTER ANIMATION III. (3)** *Prerequisites:* ART 344 or permission of instructor. An upper level of 3D computer animation, dedicated to exploring the possibilities of computer animation in a fine-art and experimental context, particularly emphasizes creative experimentation, personal expression based on an interdisciplinary practice aimed at bridging the arts and technologies.

### CERAMICS COURSES

**ART 220. CERAMICS. (3)** *Prerequisites:* ART 105 or 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. ILLUSTRATION. (3)** *Prerequisites:* ART 231 and 340, or permission of instructor. This course stresses the application of various graphic media and techniques to solve problems in illustration. **Course Fee**

**ART 433. PACKAGE DESIGN. (3)** *Prerequisites:* 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 or 106, 130, 140 (or concurrently with ART 105 or 106). This course introduces the student to printmaking through one of the following processes: relief, screen printing, 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, screen-printing, 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. Advanced studio exploration through historical, technical and practical methods. **Course Fee**

**ART 464. SENIOR PAINTING STUDIO II. (3)** *Prerequisite:* ART 462. 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. Development of a sustainable studio practice through individual problem solving. **Course Fee**

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

**SCULPTURE COURSES**

**ART 270. SCULPTURE SURVEY I. (3)** *Prerequisites:* ART 105 or 106, and 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. 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**

## COURSE DESCRIPTIONS

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**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**

**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 373. INSTALLATION ART. (3)** *Prerequisite:* Any 200-level course in studio art or graphic design. Introduction to and practice with concepts, materials and methods of installation art. Students will experiment with developing their own artistic voice through creating site-specific art installations. Off campus field trip may be taken. May be repeated once for 3 additional credits. **Course Fee**

**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)** *Special requirement: Senior standing with studio or graphic design concentration in AB or BFA.* A seminar workshop with emphasis on presentation and practices appropriate to future development. To be taken the last semester of the student's program of study in art. (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. **Course Fee**

### **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)** *Prerequisites:* 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.

### **ASL— AMERICAN SIGN LANGUAGE**

#### **DEPARTMENT OF COMMUNICATION SCIENCES AND DISORDERS**

**ASL 101. AMERICAN SIGN LANGUAGE I. (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. **Course Fee | GENED A-II | GE**

**ASL 102. AMERICAN SIGN LANGUAGE II. (3)** *Prerequisites:* ASL 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. **Course Fee | Fulfills World Language with a grade of C or better.**

**ASL 201. AMERICAN SIGN LANGUAGE III. (3)** *Prerequisites:* ASL 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. **Course Fee | Fulfills World Language with a grade of C or better.**

**ASL 301. AMERICAN SIGN LANGUAGE IV. (3)** *Prerequisites:* ASL 201, with a minimum grade of "C" or instructor permission. The fourth in the four-semester sequence which continues training in American Sign Language (ASL) and study 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 | Fulfills World Language with a grade of C or better.**

**ASL 302. DEAF CULTURE IN AMERICA. (3)** An analysis of the sociological, cultural, and political impacts of deafness and compares various dynamics between Deaf and Hearing cultures in the United States.

**ASL 303. INTERNATIONAL DEAF STUDIES. (3)** *Prerequisite:* ASL 102 with a minimum grade of "C" or by instructor permission. A study abroad course that will expand the student's global understanding and knowledge of language, culture, education, law, technology, services provided and careers for the deaf and hard of hearing in other countries.

**ASL 306. AMERICAN SIGN LANGUAGE CLASSIFIERS. (3)** *Prerequisites / Corequisites:* ASL 301 with a minimum grade of a "C" or taking ASL301 concurrently or by instructor permission. Provides an in-depth analysis of classifiers in ASL through discussion and demonstration of the three different categories in ASL: representative classifiers (noun and its action), descriptive classifiers (size and shape, perimeter, patterns and textures), and instrumental classifiers (manipulative and handle). Students will learn to comprehend and produce classifiers from all three categories. The class will be conducted in American Sign Language to enhance comprehension. **Course Fee**

**ASL 309. ASL SPECIALIZED VOCABULARY. (3)** *Prerequisites / Corequisites:* ASL 301 with a minimum grade of "C" or taking ASL 301 concurrently or by instructor permission. Supplements a student's American Sign Language (ASL) conversational skills by introducing terms and phrases which are found in specialized settings. The class will be conducted in American Sign Language to enhance comprehension. **Course Fee**

**ASL 401. FINGERSPELLING. (3)** *Prerequisite:* ASL 201, with a minimum 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. **Course Fee**

**ASL 402. ASL PROFESSIONAL ETHICS AND ISSUES. (3)** *Prerequisites:* ASL 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.

**ASL 403. DEAF CULTURE AND HISTORY. (3)** *Prerequisites:* ASL 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.

**ASL 406. ASL SPECIAL TOPICS. (1-3)** *Prerequisites:* ASL 102. An in-depth examination of a current topic and relevance in the Deaf and Hard of Hearing community. Repeatable twice for a total of 3-9 credits.

**ASTR – ASTRONOMY**  
**DEPARTMENT OF PHYSICS AND ASTRONOMY**
**COLONNADE COURSES**

**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. **Colonnade E-NS (SL) | NS | SL**

**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. **Colonnade E-NS (SL) | NS | SL**

**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. **Colonnade E-NS | NS**

**ASTR 275. ASTRONOMY RESEARCH METHODS. (3)** *Prerequisite: MATH 117 or equivalent; and permission of instructor.* 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.

**SCIENCE / MATH MAJORS AND MINORS**

**ASTR 214. GENERAL ASTRONOMY. (4)** *Corequisite: 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.

**EDUCATION MAJORS AND MINORS**

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

**PHYSICS 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.* Interdisciplinary 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)** *Prerequisites: 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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**BA 495. CAREER DEVELOPMENT ATTENDANCE. (0)** *Prerequisites: Senior standing and admission to the college.* Completion of multiple career readiness and professional development events and activities prior to graduation from WKU. All events and activities must be from an approved Gordon Ford College of Business list. **Course Fee**

**BCOM – BROADCAST COMMUNICATION**  
**SCHOOL OF JOURNALISM & BROADCASTING**

**BCOM 201. PROCESS AND EFFECTS OF MASS COMMUNICATION. (3)** Mass communication's potential to influence audience beliefs and behaviors is analyzed. Provides a clear, compelling presentation of the fundamentals and history of the theoretical underpinnings and current status of media effects research – knowledge that will help the student to navigate in a media-saturated environment.

**BCOM 261. BASIC RADIO PRODUCTION. (3)** *Prerequisite: Either SJB 101 or 102.* 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: SJB 101 or 102.* An introduction to the theory and practice of broadcast news writing styles for radio, television and the Web. Includes analyzing and editing news information with exposure to broadcast news announcing on the student radio station, WWHR-FM. **Course Fee**

**BCOM 266. BASIC TELEVISION PRODUCTION. (3)** *Prerequisite: SJB 101 or BCOM 201 or permission of instructor.* Designed to introduce students to production principles, crew positions, equipment and general station operation. Practical experience producing various types of television broadcast and non-broadcast video material in a multi-camera studio environment. Lecture and lab. **Course Fee**

**BCOM 300. AMERICAN POPULAR ARTS. (3)** *Prerequisite: BCOM 201 or SJB 101 or POP 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 BCOM 201; or permission of instructor for students outside the School of Journalism & Broadcasting.* 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.

## COURSE DESCRIPTIONS

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

**BCOM 325. SURVEY OF ELECTRONIC MEDIA WRITING. (3)** *Prerequisite: SJB 101 or SJB 102; or permission of instructor for students outside the School of Journalism & Broadcasting.* A survey of writing for television, radio, and web audiences. Practice in writing techniques for commercials, public service announcements, news, interviews and dramatic segments. Introduction to the production elements involved in writing for broadcast and the Web. **Course Fee**

**BCOM 326. RADIO AND TELEVISION NEWS PERFORMANCE. (3)** *Prerequisite: BCOM 265 and either BCOM 261 or 266.* A practical application of skills and techniques needed as journalism performers for long-form radio interviewing and television news studio, and field on-camera presentation. The goal is to improve voice and image projection for broadcast journalism presenters. Lecture and lab. **Course Fee**

**BCOM 328. BROADCAST WEATHER GRAPHICS. (3)** *Prerequisites: BCOM 201, METR 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)** *Prerequisites: BCOM 201, METR 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 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. BROADCAST NEWS REPORTING AND PRODUCING. (3)** *Prerequisites: BCOM 335 and 368.* A practical application of broadcast news information gathering, writing, editing and presentation for the Web, radio and television. Students are exposed to the news decision aspects of broadcast news producing for the student radio, TV and online news outlets. Lecture and lab. **Course Fee**

**BCOM 366. EDITING I. (3)** *Prerequisite: BCOM 266 or FILM 201.* 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)** *Prerequisite: BCOM 366.* 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)** *Prerequisites: BCOM 365 and 366.* A study of, and practical experience in, field techniques of videography and editing procedures as they pertain to television news and documentaries. Emphasis on ethical television photojournalism, 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 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 380. INTERMEDIATE 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: Sophomore status.* A study of the marketing principles, problems and techniques of producing revenue for broadcast radio, televisions and the Internet 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.

**BCOM 429. BROADCAST METEOROLOGY. (3)** *Prerequisites: BCOM 328, BCOM 329, METR 324, 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. Coursework involves practical application of radio production and management skills in the areas of entertainment and news. Lecture and lab. May be repeated twice for additional credit.

**BCOM 463. FIELD PRODUCTION II. (3)** *Prerequisite: BCOM 367.* Advanced study of single-camera video production, including producing, directing, shooting, and editing. Emphasis on collaborative video field production and post-production. **Course Fee**

**BCOM 465. ADVANCED BROADCAST NEWS. (3)** *Prerequisites: BCOM 365 and 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. TELEVISION DIRECTING. (4)** *Prerequisite: BCOM 463.* Professional level directing course for broadcasting majors. Structured to offer students a thorough knowledge of and experience in directing single and multi-camera productions. Emphasis on live and recorded programs for broadcast and non-broadcast applications. **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 and radio / TV sports announcing. Workshop production outlets include regular newscasts, television and radio sports broadcasts, and others.

**BCOM 476. ADVANCED RADIO SALES. (3)** *Prerequisite: BCOM 385.* Storytelling's role in radio sales and the critical skills needed in today's radio sales profession. Builds upon the foundation presented in Broadcast Sales (BCOM 385) by focusing on selling all of the various advertising platforms in consolidated radio operations. Students will have the opportunity to earn their Radio Marketing Professional and Certified Digital Market Professional certifications from the Radio Advertising Bureau.

**BCOM 480. EDITING III. (3)** *Prerequisite: 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 380, 463, and senior standing.* 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:* BCOM 385 or permission of instructor. 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.

**BDAS – Brewing and Distilling Arts & Sciences**

POTTER COLLEGE OF ARTS & LETTERS

OGDEN COLLEGE OF SCIENCE AND ENGINEERING

**BDAS 300. THE SCIENCE OF FERMENTATION IN BREWING AND DISTILLING. (3)**

Introduction to the basic scientific principles that govern the fermentation process, with particular application to brewing and distilling.

**BDAS 310. BREWHOUSE AND DISTILLERY PROCESSES. (2)** The methodology and processes involved in the preparation of wort and mash for brewing and distilling, including the essentials of the science and technology that precedes fermentation.

**BDAS 310-M1. BREWHOUSE AND DISTILLERY PROCESSES MODULE 1. (1)**

The methodology and processes involved in the preparation of wort and mash for brewing and distilling, including the essentials of the science and technology that precedes fermentation.

**BDAS 310-M2. BREWHOUSE AND DISTILLERY PROCESSES MODULE 2. (1)**

The methodology and processes involved in the preparation of wort and mash brewing and distilling, including the essentials of the science and technology that precedes fermentation.

**BDAS 495. INTERNSHIP IN BREWING / DISTILLING. (1-3)** *Prerequisites:*

Registration in the certificate and consultation with a designee of the Ogden college, Gordon Ford college, or Potter college Dean's office. On-site experience in a brewery or distillery, conducted under the supervision of the program coordinator and local personnel. Experience could include but is not limited to brewing, distilling, marketing, management, or other industry-related work. Can be repeated for up to 6 credit hours.

**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 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 400. 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 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.

**BDAN – BUSINESS DATA ANALYTICS**

DEPARTMENT OF INFORMATION SYSTEMS

**BDAN 310. BUSINESS DATA ANALYTICS. (3)** *Prerequisite:* CIS 243. An

introduction to the application of data analytics methods to business issues. Topics include business case studies, data analytics, model building techniques, and communications of results. *Course Fee*

**BDAN 320. WEB ANALYTICS. (3)** *Prerequisite:* CIS 243. An introduction to measuring, collecting, analyzing, and reporting on online digital Web data using digital analytics and business intelligence. *Course Fee*.

**BDAN 330. STRUCTURED DATA ANALYSIS. (3)** *Prerequisite:* CIS 243. An introduction to the practical analysis and interpretation of different forms of data, emphasizing how and when to use particular tools, techniques, and metrics to maximize decision-making. *Course Fee*

**BDAN 350. DATA MANAGEMENT. (3)** *Prerequisite:* CIS 243. An introduction to managing the data used in business data analytics. Topics include data sources, acquisition, conditioning, storage, and security. *Course Fee*

**BDAN 410. DECISION SUPPORT SYSTEMS ANALYSIS AND DESIGN. (3)** *Prerequisite:* CIS 243. An exploration of the analysis and design processes used to develop and deploy decision support systems (DSS) in businesses, which are technology-based tools that support decision-making activities *Course Fee*

**BDAN 420. DATA MINING. (3)** *Prerequisite:* BDAN 310. An introduction to data mining and the demonstration of extraction principles from data stored in large heterogeneous volumes and how organizations can analyze data from multiple perspectives. *Course Fee*.

**BDAN 430. DATA VISUALIZATION AND DIGITAL DASHBOARDS. (3)**

*Prerequisite:* BDAN 310. An introduction to the accumulation, analysis, and visualization of complex data sets for businesses, including the analysis of complex data sets and developing digital dashboards and scorecards. *Course Fee*

**BIOL – BIOLOGY**

DEPARTMENT OF BIOLOGY (BIOL)

\*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. 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. *Colonnade E-NS | NS*

\***BIOL 114. 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 | Colonnade E-SL | SL*

**BIOL 120. BIOLOGICAL CONCEPTS: CELLS METABOLISM AND 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. *Colonnade E-NS | NS*

**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 | Colonnade E-SL | SL*

**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. *Colonnade E-NS | NS*

**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. *Course Fee | Colonnade E-SL | SL*

\***BIOL 131. 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 | Colonnade E-NS (SL) | NS | SL*

## COURSE DESCRIPTIONS

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**BIOL 199. INTRODUCTION TO RESEARCH EXPERIENCE. (1)** Introduces students to biological research through hands-on, small group sessions. Each student will learn research techniques in modern biology with a focus on ethics and critical thinking. **Course fee**

**\*BIOL 207. 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).

**Colonnade E-NS | NS**

**\*BIOL 208. GENERAL MICROBIOLOGY LABORATORY. (1)** Prerequisite / concurrent prerequisite: BIOL 207. A laboratory course correlated with BIOL 207. **Course Fee | Colonnade E-SL | SL**

**BIOL 212. GENOME DISCOVERY AND EXPLORATION. (2)** Discovery, characterization, and genomic analysis of viruses from sample collection and purification through DNA isolation and analysis.

**BIOL 222. PLANT BIOLOGY AND DIVERSITY. (3)** Prerequisites: BIOL 120 / 121 and BIOL 122-123 with grades of "C" or higher. 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 with grades of "C" or higher. 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)** Corequisite: 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 with grades of "C" or higher. 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 275. 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 hours counting for the Biology major or minor.

**BIOL 285. INTRODUCTION TO FIELD BIOLOGY. (1-4)** An introductory field experience on a specific biological or ecological topic.

**\*BIOL 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** Prerequisite: Ogden Research Scholar, or 3.2 grade point average at the end of freshman year, or OCSTH 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, 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, ENGR 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.

**\*BIOL 303. LIFE SCIENCE FOR MIDDLE GRADES TEACHERS. (1-3)** Prerequisites: BIOL 120 / 121, BIOL 122 / 123, and 6 hours of SMED 200 level and above courses. Pedagogical content and knowledge in life sciences with practicum experience for middle school teachers. Not available for credit toward any biology, chemistry, or biochemistry major or minor. May be repeated once for a maximum of 4 credit hours.

**BIOL 312. BIOINFORMATICS. (4)** Prerequisites: BIOL 120 / 121 with grades of "C" or higher or consent of instructor. 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. (3)** Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher. A study of the fundamental principles of ecology. **Course Fee**

**BIOL 316. EVOLUTION: THEORY AND PROCESS. (3)** Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher. 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 317. PLANT PATHOLOGY. (3)** Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher. Introduction to common plant pathogens and diseases of agronomically important field and forage crops, turf, vegetables and ornamentals. Topics include control measures, newly discovered diseases, and plant-pathogen interactions.

**\*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 with grades of "C" or higher; CHEM 120 / 121. 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)** Prerequisite / concurrent prerequisite: BIOL 319. Laboratory course presenting fundamental techniques for the isolation and characterization of biological molecules, with an emphasis on proteins and nucleic acids. **Course Fee**

**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 with grades of "C" or higher 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 with grades of "C" or higher. A study of the general characteristics, economic importance, history, structure, classification, and identification of birds.

**BIOL 327. GENETICS. (3)** Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher. A study of the fundamental principles of heredity in eukaryotic organisms.

**BIOL 328. IMMUNOLOGY. (4)** Prerequisites: BIOL 319 / 322 or BIOL 327 / 337. 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 / concurrent Prerequisite: 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 332. PRINCIPLES OF WILDLIFE ECOLOGY AND MANAGEMENT. (3)** Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 each with grade of "C" or higher or consent of instructor. Examination of the principles of wildlife ecology and management, including ecological theory, population regulation, habitat management, wildlife diseases, and conservation. Primarily for those interested in a career involving wildlife.

**BIOL 334. ANIMAL BEHAVIOR. (3)** *Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher.* 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.

**BIOL 335. NEUROBIOLOGY. (3)** *Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher 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 336. FOOD MICROBIOLOGY. (3)** *Prerequisites: BIOL 207 / 208, or BIOL 226 / 227, or consent of instructor.* A comprehensive understanding of food microbiology, including foodborne pathogenic bacteria, beneficial bacteria, microbial impact on food processing, control of microorganisms in food, and food regulations. This course may include off-campus travels to food processing companies or government laboratories.

**BIOL 337. GENETICS LABORATORY. (1)** *Prerequisite or concurrent prerequisite: BIOL 327.* A laboratory-based study of genetics, genomics, and population genetics. Modern laboratory techniques are emphasized. **Course fee.**

**\*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 222 / 223 with a grade of "C" or better; or permission 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 120 / 121 and BIOL 122 / 123 with grades of "C" or higher or consent of instructor.* 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 355. ECOLOGY LAB. (2)** *Prerequisite / concurrent prerequisite: BIOL 315.* A field-oriented, science process course where students learn to perform research and gain experience in ecology.

**BIOL 356. ORNITHOLOGY LAB. (2)** *Prerequisite / concurrent prerequisite: BIOL 326.* The taxonomy, morphology, and natural history of birds of Kentucky. Off-campus travel will be required. **Course Fee**

**BIOL 369. COOPERATIVE EDUCATION IN BIOLOGY. (1-3)** *Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with a grade of "C" or higher and consent of instructor.* Practical experience in a supervised, professional work environment in an instructional classroom, business, industry, government agency or laboratory setting.

**BIOL 372. CAUSES AND CONSEQUENCES OF HUMAN-WILDLIFE CONFLICT. (3)** *Prerequisites: 21 hours of Colonnade Foundations and Explorations courses, or junior or senior status.* Global study of human-wildlife conflict and the varying ecological, social, economic, and cultural realities that influence this conflict.

#### **Colonnade K-LG**

**BIOL 377. ANIMAL FORM AND FUNCTION. (3)** *Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher 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 380. CHALLENGES OF A CHANGING BIOSPHERE. (3)** *Prerequisite: 21 hours of Colonnade Foundations and Explorations Courses, or junior status.* A focus on environmental issues from a biological perspective with emphasis on Habitat loss, Invasive species, Population growth, Pollution, and Overharvesting (HIPPO) in light of climate change and extinction. **Colonnade K-LG**

**BIOL 382. INTRODUCTORY BIostatISTICS. (3)** *Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher or consent of instructor; MATH 117 (or equivalent or higher).* 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 388. CONTEMPORARY ISSUES IN BIOTECHNOLOGY. (0-1)** *Prerequisites: Restricted to majors of the Molecular Biotechnology program.* Examination of recent advances, ethics and career opportunities in biotechnology through discussions, seminars, and field trips.

**\*BIOL 390. ETHNOBIOLOGY — PEOPLE, PLANTS, & ANIMALS. (3)** *Prerequisite: 21 hours of Colonnade Foundation and Exploration Courses, or junior status.* Interdisciplinary study of the relationships of plants and animals with human cultures worldwide, including past and present relationships between peoples and the environment. **Colonnade K-SY**

**BIOL 397. SCIENTIFIC PROCESS. (2-4)** *Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher or permission of instructor.* An in-depth experience with scientific research from concept through dissemination.

**BIOL 399. RESEARCH PROBLEMS IN BIOLOGY. (1-3)** *Prerequisite: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher and consent of research project director.* A study involving a research project under faculty supervision. May be repeated with a maximum of 6 hours (ref. 525) or 3 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)** *Prerequisites: BIOL 319 / 322.* 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 with grades of "C" or higher 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 / 225 or consent of instructor.* The taxonomy and biology of the insects commonly encountered in freshwater habitats.

**BIOL 407. VIROLOGY. (3)** *Prerequisites: BIOL 319 and BIOL 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 BIOL 322 or BIOL 327 and BIOL 337.* 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)** *Prerequisites / concurrent prerequisite: BIOL 411.* A laboratory course correlated with BIOL 411. **Course Fee**

**BIOL 420. INTRODUCTION TO TOXICOLOGY. (3)** *Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher or consent of instructor; CHEM 314 or equivalent.* Toxicology is the study of the adverse effects 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 440. DEVELOPMENTAL GENETICS. (3)** *Prerequisites: BIOL 319 and BIOL 322 or BIOL 327 and BIOL 337.* 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 with grades of "C" or better.* 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)** *Prerequisite or corequisite: BIOL 446 or CHEM 446 with a grade of "C" or better.* 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 or 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.

## COURSE DESCRIPTIONS

**BIOL 457. HERPETOLOGY. (4)** *Prerequisites: BIOL 224 / 225 with a grade of "C" or higher or consent of instructor.* The diversity, biology, and conservation of reptiles and amphibians. Off-campus travel will be required.

**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**

**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 464. ENDOCRINOLOGY. (3)** *Prerequisites: BIOL 319 and BIOL 322.* A study of the structure and function of the endocrine glands and their role in the physiological communication and regulation.

**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 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 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 489. PROFESSIONAL ASPECTS OF BIOLOGY. (1)** *Prerequisites: BIOL 315 or BIOL 316 or BIOL 319 or BIOL 327 and senior status.* Current topics and the role of science in society, participation in seminars, evaluation of biological skills and knowledge, preparation for careers in biology, and construction of an alumnus action plan.

**BIOL 490. PLANTS AS ALTERNATIVE THERAPEUTICS. (3)** *Prerequisites: BIOL 120 / 121 and BIOL 122 / 123 with grades of "C" or higher.* 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 319 or BIOL 327 or consent of instructor.* A study of the molecular basis of genetics in prokaryotic and eukaryotic organisms.

**BIOL 496. PLANT BIOTECHNOLOGY. (4)** *Prerequisites: BIOL 319 and BIOL 322 and AGRO 110 or BIOL 222 / 223.* 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 PHILOSOPHY AND RELIGION

**BLNG 152. BIBLICAL LANGUAGES I: INTRODUCTORY HEBREW. (3)** A study of the vocabulary, grammar, and syntax of Biblical Hebrew. Equivalent to RELS 152.

**BLNG 153. BIBLICAL LANGUAGES II: INTERMEDIATE HEBREW. (3)** *Prerequisite: RELS 152 or BLNG 152.* 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. Equivalent to RELS 153. **Fulfills World Language with a grade of C or better.**

**BLNG 154. BIBLICAL LANGUAGES III: INTRODUCTORY GREEK. (3)** A study of the vocabulary, grammar, and syntax of Koine Greek. Equivalent to RELS 154.

**BLNG 155. BIBLICAL LANGUAGES IV: INTERMEDIATE GREEK. (3)** *Prerequisite: RELS154.* Further development of an understanding of Koine Greek with readings in the New Testament and Hellenistic literature. Equivalent to RELS 155. **Fulfills World Language with a grade of C or better.**

### BUS–BUSINESS MANAGEMENT

#### SCHOOL OF PROFESSIONAL STUDIES

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

**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 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 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.

**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)** *Prerequisites: Director 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 enhances 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.** (2) 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.

**BUS 253C. MANAGEMENT CAPSTONE.** (3) *Prerequisite: 30 credit hours in the program or permission of program advisor.* Designed to assess students' learning from the courses in their major and other courses of the curriculum. Provides students with an opportunity to demonstrate that they have acquired the necessary skills for a successful integration into the workplace.

**BUS 254C. OFFICE ADMINISTRATION.** (3) Includes work relationships, leadership roles, team membership, problem solving skills, and the use of technology.

**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 SCIENCES AND 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 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 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. INTRODUCTION TO COMMUNICATION SCIENCES AND DISORDERS.** (3) 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) 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 347. SCIENCE OF SPEECH AND HEARING.** (3) Overview of the linguistic, psycholinguistic, and sociolinguistic variables of speech and hearing. Basic orientation to instruments for measuring acoustic parameters.

**CD 348. INTRODUCTION TO CLINICAL RESEARCH AND WRITING IN COMMUNICATION SCIENCES AND DISORDERS.** (3) Introduction to clinical research methods and writing for professional reports and publication in speech language pathology and audiology. The course provides an overview of discipline specific research strategies, methods, and goals of clinical research. A primer in scientific and professional writing for speech language pathology specific clinical settings and journals is also covered.

**CD 405. APPLIED PHONETICS.** (3) *Prerequisites: Admission to the major.* 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 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 440. PHONOLOGY AND LANGUAGE DISORDERS.** (3) *Prerequisites: CD 405, 481.* Study of the etiology, assessment and treatment of phonological and language disorders in children and adolescents.

**CD 472. SPECIAL TOPICS IN COMMUNICATION DISORDERS.** (1-3) *Prerequisite: Permission of instructor.* An in-depth examination of a topic of current interest and relevance to students majoring in Communication Disorders or minoring in ASL. Repeatable to a maximum of 6 hours of credit.

**CD 478. CLINICAL ISSUES AND TREATMENT IN SPEECH LANGUAGE PATHOLOGY.** (3) *Prerequisites: Acceptance into CD program.* 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.* Introduction to development of speech and language across the lifespan with emphasis on comprehensive child development. Topics include development of speech and language, play, cognition, socialization, and emerging literacy.

**CD 482. AUDIOLOGY.** (3) *Prerequisites: Acceptance into CD program.* 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. INTRODUCTION TO DISORDERS OF ARTICULATION AND PHONOLOGY.** (3) *Prerequisites: CD 405 and Acceptance into CD program.* 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.* 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. INTRODUCTION TO ASSESSMENT IN COMMUNICATION DISORDERS.** (3) *Prerequisites: CD 405, 481, 484 and Acceptance into CD program.* 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 405, 481, 484 and Acceptance into CD program.* 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.

## COURSE DESCRIPTIONS

**CD 487. AURAL REHABILITATION. (3)** *Prerequisites: CD 482 and Acceptance into CD program.* 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 405, 481, 483, 485, 486 and Acceptance into CD program.* 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. COMMUNICATION DISORDERS IN AGING. (3)** *Prerequisites: Senior status and Acceptance into CD program, or instructor permission.* Teaches about symptoms, causes, and treatment of speech, language, and hearing disorders in the geriatric population.

**CD 490. CONNECTING WITH NONVERBAL COMMUNICATORS. (3)** *Prerequisites: CD 481, CD 486; Acceptance into CD program, 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: Senior status and Acceptance into CD program.* 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 492. NEUROANATOMY IN COMMUNICATION SCIENCES AND DISORDERS. (3)** *Prerequisites: CD 482, 484; and Acceptance into CD program.* Introduction to the study of brain, central nervous system, and peripheral nervous system and its relation to the field of communication sciences and disorders. Normal and abnormal development will be addressed. Diagnostic procedures and intervention techniques are discussed.

**CD 495. CLINICAL INTERNSHIP. (2-3)** *Prerequisites: CD 478, 483, 485, 486, 487 and Acceptance into CD program.* Introduction to therapeutic process by beginning the transition from theory to practice. Clinical documentation; therapeutic planning and implementation; and case study analysis are addressed. **Course Fee**

**CD 496. INTERNATIONAL SPEECH PATHOLOGY. (3)** *Prerequisite: Enrolled as a Communication Disorders major at WKU or instructor permission.* A study 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

#### SCHOOL OF ENGINEERING AND APPLIED SCIENCES

**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, theodolites, 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. **Course Fee**

**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. **Course Fee**

**CE 300. FLOODPLAIN MANAGEMENT. (3)** *Prerequisite: 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 Manager Exam (CFM) within a maximum of two attempts. Students will be required to pay the exam fee (s) to the Association of State Floodplain Managers. **Course Fee**

**CE 301. FIELD EXPERIENCE IN FLOODPLAIN MANAGEMENT. (3)** *Prerequisite: junior standing.* Field study and mitigation techniques for river flooding, karst flooding, flash flooding, alluvial fan flooding, tropical storms or a combination of these. Course involves travel.

**CE 303. CONSTRUCTION MANAGEMENT. (3)** *Prerequisites: MATH 127 or higher, Sophomore standing. 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. **Course Fee**

**CE 305. RISK ANALYSIS. (3)** *Prerequisite: MATH 137.* Uncertainty and methods for risk analysis for engineering systems including engineering economics, probabilistic and statistical methods, and Monte Carlo simulation with applications to civil, electrical, and mechanical engineering.

**CE 310. STRENGTH OF MATERIALS LABORATORY. (1)** *Prerequisites: 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. **Course Fee**

**CE 316. EQUIPMENT & METHODS. (3)** *Prerequisite: MATH 117 or higher, Sophomore standing.* 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. **Course Fee**

**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 332. TRANSPORTATION ENGINEERING. (3)** *Prerequisites: CE 160 and 161, EM 222, PHYS 255.* 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 342. FLUID THERMAL SCIENCE. (4)** *Prerequisites: MATH 237, EM 221 or EM 222, and Civil Engineering major status.* 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 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 treatment, 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 corequisite 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 370. MATERIALS OF CONSTRUCTION. (2)** *Prerequisite: EM 302 or 303. Corequisite: CE 371.* 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. **Course Fee**

**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 gradients; 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. **Course Fee**

**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)** *Corequisite: CE 380.* Field and office procedures in support of material covered in CE 380. **Course Fee**

**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. **Course Fee**

**CE 383. STRUCTURAL STEEL DESIGN. (3)** *Prerequisite: CE 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. **Course Fee**

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

**CE 400. CIVIL ENGINEERING SENIOR DESIGN SEMINAR. (2)** *Prerequisites or corequisites: Senior standing and consent of the instructor.* Professional, ethical and decision-making issues related to the civil engineering design 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)** *Prerequisites: 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. **Course Fee**

**CE 412. FOUNDATION ENGINEERING. (3)** *Prerequisite: CE 410, 411.* A continuation of CE 410-Soil Mechanics focusing on the design and construction of shallow and deep foundations. Additional topics will include slope stability analysis and advanced discussions of retaining wall design and subsurface investigations.

**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, shear walls, and unreinforced and reinforced masonry structures.

**CE 444. BRIDGE ENGINEERING. (3)** *Prerequisite: 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 461. HYDROLOGY. (3)** *Prerequisites: MATH 331, CE 160, and CE 341 or CE 342. Corequisites: CE 305 or STAT 301.* A study of the physical laws affecting the occurrence, distribution, movement, storage, and contamination of water in watersheds. Qualitative analysis and quantitative modeling of precipitation, evapotranspiration, infiltration, groundwater, and stream flow. Models of contamination of rivers, lakes, soils, and groundwater. Applications to engineering design under extreme events, and environmental engineering.

**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 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.

**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 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 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 – CHEMISTRY DEPARTMENT OF CHEMISTRY (CHEM)

**CHEM 101. 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. **Course Fee | Colonnade E-NS (SL) | NS | SL**

## COURSE DESCRIPTIONS

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**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. **Colonnade E-NS | NS**

**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 | Colonnade E-SL | SL**

**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. CHEMISTRY FOR THE HEALTH SCIENCES. (4)** A course designed to emphasize the practical aspects of inorganic, organic and biochemistry as related to human health. The course is offered specifically for students in the allied health programs, but it 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. **Colonnade E-NS | NS**

**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. **Colonnade E-NS (SL) | NS | SL**

**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 mathematics 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. **Colonnade E-NS | NS**

**CHEM 120. COLLEGE CHEMISTRY I. (3)** *Prerequisite:* Satisfactory MATH ACT score or equivalent or MATH 116 with a grade of "C" or better. *Corequisite:* CHEM 121. The first half of the standard yearlong general chemistry course sequence for science majors and minors. **Colonnade E-NS | NS**

**CHEM 121. COLLEGE CHEMISTRY I LABORATORY. (2)** *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. **Course Fee | Colonnade E-SL | SL**

**CHEM 222. COLLEGE CHEMISTRY II. (3)** *Prerequisites:* CHEM 120-121 with a grade of "C" or better. *Corequisite:* CHEM 223. A continuation of the first year course in chemistry for science majors and minors.

**CHEM 223. COLLEGE CHEMISTRY II LABORATORY. (2)** *Corequisite:* CHEM 222. Laboratory to accompany CHEM 222. Laboratory to accompany CHEM 222. Pre-lab and laboratory meet for four hours per week. **Course Fee**

**CHEM 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** *Prerequisite:* Ogden Research Scholar, or 3.2 grade point average at the end of freshman year, or Ogden College 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, 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 toward any major or minor.) Equivalent to BIOL 295, CS 295, ENGR 295, GEOL 295, MATH 295, and PHYS 295.

**CHEM 299. INTRODUCTION TO CHEMICAL RESEARCH. (0-3)** *Prerequisites:* Consent of a faculty research advisor. A course designed to introduce the student to independent chemical research. Each credit hour requires 2 ½ hours laboratory work per week with written and oral reports of laboratory work suggested. **Course Fee**

**CHEM 304. BIOCHEMISTRY FOR THE HEALTH SCIENCES. (4)** *Prerequisite:* CHEM 107 or CHEM 109. 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 306. FOOD CHEMISTRY. (3)** *Prerequisites:* CHEM 107 / 108, or CHEM 109, or permission of instructor. An understanding of the fundamental building blocks in food (proteins, lipids, carbohydrates, and minerals) and chemical, physical and biological phenomena that affect food quality, texture, flavor, and safety.

**CHEM 314. INTRODUCTORY ORGANIC CHEMISTRY. (5)** *Prerequisites:* CHEM 222-223 with a grade of "C" or better. 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 with a grade of "C" or better. A treatment of the usual topics in theoretical inorganic chemistry presented at a level not requiring calculus..

**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. Lecture, 3 hours; laboratory, 2 hours. Laboratory meets found and one-half hours per week. **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. LAB ORGANIC CHEMISTRY 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)** *Prerequisites:* 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:* Consent of a faculty research advisor. Special research assignments in accord with the interest of the student. Requires a minimum of 3 hours laboratory work per week for each hour of credit. A written report of the work is required. **Course Fee**

**CHEM 412. INTRODUCTION TO PHYSICAL CHEMISTRY. (5)** *Prerequisites:* A grade of "C" or better in CHEM 314 or 340; CHEM 330; MATH 136; PHYS 231 or 255. 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:* A grade of "C" or better in CHEM 320 and CHEM 450-451. 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 421. INORGANIC CHEMISTRY LABORATORY. (1)** *Prerequisite or corequisite: CHEM 420 with a grade of "C" or better.* A laboratory course emphasizing the synthesis and characterization of inorganic compounds of the main group and transition metals. Laboratory meetings once a week for three hours.

**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)** *Prerequisites: CHEM 314 or 340 and CHEM 330 with a grade of "C" or better.* 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 330 and CHEM 340 with a grade of "C" or better. Corequisite: CHEM 346.* A course in modern instrumental methods of analysis including spectroscopic, electroanalytical and chromatographic techniques. **Course Fee**

**CHEM 436. INSTRUMENTAL ANALYSIS LABORATORY. (2)** *Corequisite: CHEM 435.* A laboratory to accompany CHEM 435 focusing on techniques involving modern instrumental analysis. Pre-lab and laboratory meets 4.5 hours per week.

**CHEM 440. INTRODUCTION TO SYNTHETIC ORGANIC METHODOLOGY. (3)** *Prerequisite: 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 with a grade of "C" or better.* 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)** *Prerequisite or corequisite: BIOL / CHEM 446 with a grade of "C" or better.* 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: A grade of "C" or better in CHEM 314 or 340; CHEM 330; MATH 136, PHYS 231 or 255. Corequisite: CHEM 451.* A detailed study of the fundamental principles and models describing the physical and chemical properties of matter at both the microscopic and macroscopic levels. Selected topics may include thermodynamics and equilibria, the kinetic theory of gases, transport properties, chemical kinetics, introductory quantum mechanics, spectroscopy, statistical thermodynamics, and interdisciplinary applications.

**CHEM 451. PHYSICAL CHEMISTRY I LABORATORY. (2)** *Corequisite: CHEM 450.* A laboratory to accompany CHEM 450 that emphasizes the treatment and analysis of scientific data as well as formal scientific communication. Experiments may include measurements of thermochemical properties, phase and chemical equilibria, kinetic rates, spectroscopic properties, and supporting computational chemistry. Pre-lab lecture and laboratory meets 4.5 hours per week. **Course Fee**

**CHEM 452. PHYSICAL CHEMISTRY II. (3)** *Prerequisites: A grade of "C" or better in CHEM 320; CHEM 450; MATH 137; PHYS 365 or 332. Corequisite: CHEM 453.* A continuation of CHEM 450. Selected topics include thermodynamics and equilibria, the kinetic theory of gases, transport properties, chemical kinetics, introductory quantum mechanics, spectroscopy, statistical thermodynamics, and interdisciplinary applications.

**CHEM 453. PHYSICAL CHEMISTRY II LABORATORY. (2)** *Corequisite: CHEM 452.* A laboratory to accompany CHEM 452. Experiments may include measurements of thermochemical properties, phase and chemical equilibria, kinetic rates, spectroscopic properties, and supporting computational chemistry. Pre-lab lecture and laboratory meets 4.5 hours per week. **Course Fee**

**CHEM 462. BIOINORGANIC CHEMISTRY. (3)** *Prerequisite: CHEM 314 or 340 with a grade of "C" or better.* 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. (3)** *Prerequisites: CHEM 105 or 120.* A study of the atomic and electronic structure of atoms, bonding theories, types of chemical reactions, intermolecular forces and the structure of solids as related to the middle school science curriculum. The course may not be used to fulfill the requirements for a chemistry major or minor.

**CHEM 475. SELECTED TOPICS IN CHEMISTRY. (1-3)** *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: Permission of the instructor.* 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 330 and CHEM 412 or 452 with a grade of "C" or better.* 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 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

**CHHS 175. UNIVERSITY EXPERIENCE – HEALTH AND HUMAN SERVICES. (3)** *Prerequisite: For beginning college freshman or transfer students with fewer than 24 hours 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. Field trips may be required; students responsible for own transportation.

#### CHIN— CHINESE

##### DEPARTMENT OF MODERN LANGUAGES

**CHIN 100. CHINESE LANGUAGE AND CULTURE ON-SITE. (1-3)** *Prerequisite: Permission of instructor.* An introduction to Chinese and Chinese-speaking culture in conjunction with study abroad for students with little or no previous language study. 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.

**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 | Fulfills World Language with a grade of C or better.**

**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 108. CHINESE CALLIGRAPHY. (3)** This skill-oriented course involves hands-on activities to familiarize students with the key techniques for traditional Chinese calligraphy. Taught in English.

**CHIN 201. INTERMEDIATE CHINESE I. (3)** *Prerequisite: CHIN 102 or equivalent.* 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. **Fulfills World Language with a grade of C or better.**

**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. **Fulfills World Language with a grade of C or better.**

## COURSE DESCRIPTIONS

**CHIN 209. CHINESE LEARNING LAB & EXPLORATORIUM I. (1-3)** *Prerequisite: Completion of CHIN 102 or equivalent, and permission of instructor.* Guided project-based individualized Chinese language and cultural studies at the novice and intermediate level. Number of credit hours will be determined in consultation with instructor. May be repeated for a maximum of three hours of credit.

**CHIN 301. ADVANCED INTERMEDIATE CHINESE I. (3)** *Prerequisite: CHIN 202 or equivalent.* Continued expansion of interpersonal communication skills at the advanced intermediate level. Focus on control of more complex linguistic forms to achieve increasing comprehension and presentation of Chinese language and culture on familiar topics. **Fulfills World Language with a grade of C or better.**

**CHIN 302. ADVANCED INTERMEDIATE CHINESE II. (3)** *Prerequisite: CHIN 301 or equivalent.* Continued expansion of interpersonal communication skills at the advanced intermediate level. Focus on control of more complex linguistic forms to achieve increasing comprehension and presentation of Chinese language and culture on both familiar and unfamiliar topics. **Fulfills World Language with a grade of C or better.**

**CHIN 306. EXPERIENCING CHINESE ABROAD. (1-3)** *Prerequisites: Completion of CHIN 102 or equivalent and permission of instructor.* Supervised language and cultural studies accomplished during a study abroad program. Students will receive transferable credit for language study done during the study abroad program with the approval of instructor. May be repeated once for a maximum of six credit hours. **Fulfills World Language with a grade of C or better.**

**CHIN 318. BUSINESS CHINESE. (3)** *Prerequisite: CHIN 202 or equivalent.* This intermediate-level course aims to enhance students' daily communicative skills and cultural understanding in a business context in contemporary Chinese-speaking regions. **Fulfills World Language with a grade of C or better.**

**CHIN 320. CHINESE CONVERSATION AND COMPOSITION. (3)** *Prerequisite: CHIN 202 or equivalent.* This intermediate course advances students' interpersonal and presentational communication skills with intensive practice in all language skills and a focus on speaking and writing. **Fulfills World Language with a grade of C or better.**

**CHIN 333. CHINESE CULTURE AND CIVILIZATION. (3)** *Prerequisite: Completion of CHIN 202 or equivalent.* This intermediate course introduces students to Chinese history, society, culture, and contemporary issues. It is taught in the target language. **Fulfills World Language with a grade of C or better.**

**CHIN 370. INTRODUCTION TO MODERN CHINESE LITERATURE AND FILM. (3)** *Prerequisite: Completion of one CHIN 300-level course.* Students will learn about modern China and Chinese people through contemporary literature and film in this course. **Fulfills World Language with a grade of C or better.**

**CHIN 389. INTERNSHIP IN CHINESE. (1-3)** *Prerequisite: Permission of the program instructor.* Supervised work using Chinese in a professional setting. Only open to Chinese major or minors. Can be repeated for up to six credit hours. **Fulfills World Language with a grade of C or better.**

**CHIN 401. ADVANCED CHINESE I. (3)** *Prerequisite: Completion of CHIN 302 or equivalent.* This interactive course continues to expand students' language skills at the advanced level and enables students to communicate with native Chinese speakers on practical and factual matters. **Fulfills World Language with a grade of C or better.**

**CHIN 409. CHINESE LEARNING LAB & EXPLORATORIUM I. (1-3)** *Prerequisite: Completion of CHIN 302 or equivalent, and permission of instructor.* Guided project-based individualized Chinese language and cultural studies at the advanced level. Number of credit hours will be determined in consultation with instructor. May be repeated for a maximum of three hours of credit.

**CHIN 402. ADVANCED CHINESE II. (3)** *Prerequisite: CHIN 401 or equivalent.* This interactive course builds on language skills acquired in previous study of Chinese and trains learners to handle routine communication effortlessly among native speakers of Chinese. **Fulfills World Language with a grade of C or better.**

**CHIN 418. BUSINESS CHINESE II. (3)** *Prerequisite: Completion of CHIN 318 or equivalent.* This advanced level course fosters continued development of students' language skills and cultural understanding about the business environment in contemporary Chinese-speaking regions. **Fulfills World Language with a grade of C or better.**

**CHIN 420. ADVANCED CHINESE STYLISTICS. (3)** *Prerequisite: Completion of CHIN 320 or equivalent.* This advanced course provides intensive practice in formal Chinese language. It aims to train students to be effective in narration, description, persuasion, exposition, and lyrical expression. **Fulfills World Language with a grade of C or better.**

**CHIN 450. READING CHINESE CLASSICS. (3)** *Completion of two CHIN 300-level courses.* Students will read excerpts of Chinese Classics to develop in-depth understanding of Chinese values and traditions in cultural context. **Fulfills World Language with a grade of C or better.**

### CHNF – CHINESE FLAGSHIP

#### DEPARTMENT OF MODERN LANGUAGES

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

**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. **Fulfills World Language with a grade of C or better.**

**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 advanced-low level.

**CHNF 420. MEDIA CHINESE. (3)** *Prerequisite: Admission to the CHNF program and permission of instructor.* An advanced-level Chinese Flagship course designed to enhance students' immersion learning of Mandarin Chinese by introducing them to advanced level grammar, vocabulary, and formal writing seen in Chinese language media such as newspapers, television, and the internet.

**CHNF 430. CHINESE CULTURE. (3)** *Prerequisite: CHNF 420.* An advanced Chinese Flagship course designed to enhance students' immersion into Mandarin Chinese by introducing them to the language's cultural background. Taught entirely in Chinese, students learn both Chinese language and culture through such topics as history, traditional philosophy, political thoughts, religion, arts and literature, medicine and science.

**CHNF 440. CHINESE TRADITION. (3)** *Prerequisite: Admission to the CHNF program and permission of instructor.* An advanced Chinese Flagship course designed to further deepen students' immersion learning of Mandarin Chinese vocabulary, grammar, and formal expression through introduction to China's cultural and historical traditions. Taught entirely in Chinese, the course interweaves the learning of both Chinese language and Chinese traditions.

**CHNF 450. CLASSICAL CHINESE. (3)** *Prerequisite: CHNF 420.* This is an advanced Chinese Flagship course designed to enhance students' knowledge of Mandarin Chinese by introducing classical Chinese vocabulary and grammar by reading pre-modern literary, historical, and philosophical texts.

### CIS – COMPUTER INFORMATION SYSTEMS

#### DEPARTMENT OF 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 CSCI 145C may not enroll in CIS 141. **Course Fee**

**CIS 205. TECHNOLOGY IN SOCIETY AND BUSINESS. (3)** *Prerequisites: 21 hours of Foundations and Explorations Courses, or junior status.* Examination of the impact of digital information technology on domestic and international businesses and societies, along with ethical and social impacts on professional and personal decision-making. **Course Fee | Colonnade K-LG**

**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. **Course Fee**

**CIS 243. PRINCIPLES OF MIS. (3)** *Prerequisite: CIS 141 or CSCI 145C.* 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. **Course Fee**

**CIS 320. PERSONAL INFORMATION TECHNOLOGIES. (3)** *Prerequisite:* CIS 141 or CSCI 145C. 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 CSCI 145C. 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)**  
*Prerequisites:* Application for or enrollment in Cooperative Education Plan; approval of department and Co-op Faculty Advisor; development of Learning Plan; CIS 141 or CSCI 145C, CIS 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) **Course Fee**

**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. **Course Fee** (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. **Course Fee**

**CIT – COMPUTER INFORMATION TECHNOLOGY  
SCHOOL OF ENGINEERING AND APPLIED SCIENCES**

**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.

**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)** *Prerequisites:* 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)** *Prerequisites:* 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. SYSTEMS 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)** *Prerequisites:* 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)** *Prerequisites:* CIT 300 and permission of instructor. Examines the management of technological projects including planning, implementation, control, quality, time and budget.

## COURSE DESCRIPTIONS

**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)** *Prerequisites:* 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 SCHOOL OF ENGINEERING AND APPLIED 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)** *Prerequisite:* MATH 116 with a grade of a "C" or better, or MATH 117 or better. 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:* AMS 282 or permission of instructor. 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:* CM 337 or permission of instructor. 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. Demonstrations of commonly used laboratory tests are also included. **Course Fee**

**CM 363. CONSTRUCTION ESTIMATING AND BIDDING. (3)** *Prerequisite:* CM 250 or CE 303 or permission of instructor. Methods and procedures for estimating and bidding construction projects, including extracting quality take-offs 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:* CM 250 or CE 303 or permission of instructor. 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:* CM 250 or CE 303 or permission of instructor. 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**

### CNS – COUNSELOR EDUCATION DEPARTMENT OF COUNSELING AND STUDENT AFFAIRS

**CNS 110. HUMAN RELATIONS. (3)** Theory, concepts, and skills necessary to increase self-awareness and improve relationships in social and academic settings. Processes of managing the problems of everyday life including conflict, and social demands. **Colonnade E-SB | SB**

**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.

**CNS 432. HELPING SKILLS. (3)** *Prerequisite:* Junior standing. Overview of helping in counseling and human relations, investigates the person and role of the helper, development of helping skills appropriate for lay helpers, and approaches to crisis intervention.

### COMM – COMMUNICATION DEPARTMENT OF COMMUNICATION (COMM)

**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. FUNDAMENTALS OF PUBLIC SPEAKING AND COMMUNICATION. (3)** Focuses on the preparation and delivery of public speeches (informative and persuasive), with skills development in listening, teamwork, and interpersonal communication contexts. **Course Fee | F-OC | OC**

**COMM 200. COMMUNICATION FOUNDATIONS. (3)** *Prerequisite:* COMM 145 or its OC Equivalent, and ENG 100 or its W1 equivalent, or instructor permission. Introduces foundational communication contexts, theories, and processes. **Colonnade F-W2 | WC**

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

**COMM 242. FORENSIC PRACTICUM III. (1)** *Prerequisites:* 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)** *Prerequisites:* 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)** Introduces argumentation and debate, emphasizing construction, analysis, and refutation of arguments. Classroom experience is provided in academic debating.

**COMM 247. VOICE AND DICTION. (3)** Develops pleasing voice quality, correct articulation, distinct enunciation and diction free from substandard pronunciation.

**COMM 260. ORGANIZATIONAL INTERVIEWING. (3)** *Prerequisite:* Sophomore standing, or permission of instructor. Offers fundamental principles and practices of interviewing from both interviewer and interviewee perspectives. Requires application of course content to interview process.

**COMM 300. INTRODUCTION TO COMMUNICATION RESEARCH METHODS. (3)** *Prerequisites:* COMM 200, and MATH 109 or higher or instructor permission. (COMM 200 may be taken concurrently. Introduces rhetorical, qualitative, and quantitative methods of inquiry used in communication research.

**COMM 330. LEADERSHIP COMMUNICATION. (3)** *Prerequisite:* Sophomore standing, permission of instructor. Studies the role that communication plays in various leadership contexts and situations.

**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 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 with a grade of "C" or better, or permission of instructor. Advances 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)** *Prerequisite: COMM 200 or ENG 300, or permission of instructor. (COMM 200 or ENG 300 may be taken concurrently).* Introduces basic theories of persuasion and attitude change. The course emphasizes communication theory and rhetorical perspectives of persuasion.

**COMM 348. INTERPERSONAL COMMUNICATION. (3)** *Prerequisite: COMM 200 or ENG 300, or permission of instructor. (COMM 200 or ENG 300 may be taken concurrently).* Introduces students to the fundamentals of interpersonal communication, including interpersonal skills, theory, and research.

**COMM 349. SMALL GROUP COMMUNICATION. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Studies group dynamics, interaction and communication in group situations. **Colonnade K-SY**

**COMM 362. ORGANIZATIONAL COMMUNICATION. (3)** *Prerequisite: COMM 200 or ENG 300, or permission of instructor. (COMM 200 or ENG 300 may be taken concurrently).* Introduces theoretical approaches to human communication in organizations.

**COMM 364. CRISIS COMMUNICATION. (3)** *Prerequisite: COMM 200 with a grade of "C" or better or instructor permission.* Examines communicative pre-crisis preparation and post-crisis response strategies.

**COMM 365. INTERCULTURAL COMMUNICATION. (3)** *Prerequisite: 21 hours of Foundations and Explorations courses, or junior standing.* Introduces concepts and principles from the communication discipline for examining, analyzing, and evaluating challenges and opportunities of engaging cultural differences in peoples' face-to-face and mediated communication interactions in today's increasingly interdependent and interconnected world. **Colonnade K-SC**

**COMM 374. GENDER COMMUNICATION. (3)** *Prerequisite: Sophomore standing, or permission of instructor.* Examines 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: Sophomore standing, or permission of instructor.* Focuses on the roles, 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: Sophomore standing and COMM 200 or ENG 300 with a grade of "C" or better or instructor permission.* Offers students courses on various communication topics not covered specifically within the curriculum. Repeatable up to 6 hours.

**COMM 415. STUDY ABROAD IN COMMUNICATION. (1-3)** Study of communication interactions, processes, and culture in international and cross-cultural locations. Repeatable up to 6 hours.

**COMM 440. HEALTH COMMUNICATION. (3)** *Prerequisite: Prerequisite: COMM 200 or ENG 300 with a grade of "C" or better, or permission of instructor.* 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 348 with a grade of "C" or better, or permission of instructor.* Designed as a survey of research and theory in interpersonal communication.

**COMM 450. FAMILY COMMUNICATION. (3)** *Prerequisites: COMM 348 with a grade of "C" or better, or permission of instructor.* Designed as a survey of research and theory in family communication.

**COMM 451. COMMUNICATION IN THE DIGITAL AGE. (3)** *Prerequisite: Sophomore standing and COMM 200 or ENG 300 with a grade of "C" or better, or permission of instructor.* Examines various types of computer-mediated communication available in contemporary organizations.

**COMM 462. ADVANCED ORGANIZATIONAL COMMUNICATION. (3)** *Prerequisites: COMM 362 with a grade of "C" or better, or permission of instructor.* Integrates and applies studies of organizational communication theory and research.

**COMM 463. ADVANCED INTERCULTURAL COMMUNICATION. (3)** *Prerequisite: Any Colonnade K-SC or K-LG course, all with a grade of "C" or better, or instructor permission.* Advances understanding and application of intercultural communication theory and research for examining, analyzing, and evaluating challenges of engaging cultural differences in today's interconnected world.

**COMM 470. ORGANIZATIONAL RELATIONSHIPS. (3)** *Prerequisites: COMM 200 with a grade of "C" or better and COMM 348 or COMM 362 with a grade of "C" or better or permission of instructor.* Examines the positive and negative elements of workplace relationships and their importance to organizational and personal well-being.

**COMM 471. COMMUNICATION IN MULTINATIONAL ORGANIZATIONS. (3)** *Prerequisite: COMM 362 with a grade of "C" or better or instructor permission.* Overview of the significant roles of communication in multinational organizations (MNOs). Analysis and application of theories and principles for effective communication among a diverse group of employees in various MNO contexts.

**COMM 489. INTERNSHIP IN COMMUNICATION. (3)** *Prerequisites: COMM 200 and 362 with a grade of "C" or better, and junior standing. For departmental majors only.* Structures 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)** *Prerequisites: COMM 200 and Senior standing, for departmental majors only. Prerequisite / Corequisite: COMM 300 or instructor permission.* Enables students to demonstrate knowledge of the discipline by applying Communication theories to analyze relevant/professional work experience, and illustrate career preparation/readiness.

**COMM 495. INDEPENDENT STUDY IN COMMUNICATION. (1-6)** *Prerequisite: COMM 200 with a grade of "C" or better, and permission of instructor.* Develops directed research in communication. Students are to submit written petitions for faculty approval of the study during the previous semester. (With permission of instructor.)

#### CRIM - CRIMINOLOGY DEPARTMENT OF SOCIOLOGY

**CRIM 101. INTRODUCTION TO CRIMINAL JUSTICE. (3)** Survey of criminal justice systems, including police, courts, and corrections. **Colonnade E-SB | SB**

**CRIM 222. INTRODUCTION TO CRIME MAPPING. (3)** *Prerequisite: CIM 101.* Introduces theoretical and methodological content related to the study of spatial crime concentration in urban environment.

**CRIM 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.

**CRIM 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, community service and new community-based programs for women will be discussed.

**CRIM 234. CRIME AND POPULAR CULTURE. (3)** Course examines depictions of crime and justice in popular culture and its influence on public perceptions of crime and the criminal justice system.

**CRIM 330. CRIMINOLOGY. (3)** Survey of crime in the United States, focusing on theoretical explanations of crime causation, crime classification, and measurement.

**CRIM 332. JUVENILE DELINQUENCY. (3)** *Prerequisite: SOCL 100 or CRIM 101 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.

**CRIM 346. SPECIAL TOPICS IN CRIMINOLOGY. (3)** *Prerequisite: CRIM 101 or permission of instructor.* Survey of topics, issues, and developments in the discipline of criminology and criminal justice. Course may be repeated with a different topic.

**CRIM 361. RACE, CLASS, AND CRIME. (3)** *Prerequisite: SOCL 100 or CRIM 101 or consent of instructor.* Course examines how race, ethnicity, and social class pose differential risks for offending, victimization, and disparate processing by the criminal justice system.

**CRIM 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.

**CRIM 430. COMPARATIVE SYSTEMS OF JUVENILE JUSTICE. (3)** The comparative study of juvenile justice systems, focusing on the varying local, state, regional, or societal structures which influence these systems. **Colonnade K-SY**

**CRIM 432. SOCIOLOGY OF CRIMINAL LAW. (3)** *Prerequisite: 6 hours of CRIM 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.

## COURSE DESCRIPTIONS

**CRIM 434. ORGANIZED CRIME. (3)** Prerequisites: 6 hours of CRIM or 6 hours of SOCL or consent of instructor. The study of both traditional and nontraditional organized crime from a sociological perspective.

**CRIM 437. THE DEATH PENALTY IN AMERICA. (3)** Prerequisite: 6 hours of CRIM or 6 hours of SOCL or consent of instructor. Course examines the death penalty in relation to public policy, legal, historical, and ethical issues, as well as arguments for and against its use.

**CRIM 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.

**CRIM 439. INTERNSHIP IN CRIMINOLOGY. (1-6)** Prerequisites: SOCL 300 or 302 and eighty hours of completed college coursework. Course pass required. Internships are unique experiential learning opportunities. Once placed with a community partner, the student works toward an enhanced understanding of prior coursework through practical experience in a supervised work situation. Repeatable once for a maximum of six credit hours.

**CRIM 446. GENDER, CRIME, AND JUSTICE. (3)** Prerequisite: Sixty completed credit hours. Explores how gender shapes reactions toward victims, offenders, and professionals working in the juvenile and criminal justice systems

**CRIM 447. LIFE-COURSE CRIMINOLOGY. (3)** Prerequisites: CRIM 330. Survey of the theoretical and empirical research examining the onset, escalation, persistence, and desistance of crime and offending patterns over the human life-course.

**CRIM 448. INTERNATIONAL JUSTICE AND CRIME. (3)** Prerequisites: CRIM 330. Comparative survey of crime, national criminal justice systems, and international and transnational criminal justice.

**CRIM 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.

**CRIM 456. HOMICIDE AND SERIAL HOMICIDE. (3)** Prerequisite: CRIM 101 and CRIM 330. Examination of empirical research pertaining to single and multiple victim homicide, including subtypes, theoretical explanations, victimology, and offender behavior.

**CRIM 489. CRIMINOLOGY STUDY ABROAD. (1-6)** Prerequisite: Consent of instructor. Study of comparative criminology, criminal justice systems and topics in international locations. Repeatable up to six hours of credit.

**CRIM 495. DIRECTED STUDY IN CRIMINOLOGY. (1-3)** Prerequisites: Junior standing and consent of department head. Individual and intensive reading and research in specific area of criminology in close cooperation with supervising faculty. Course pass required.

**CRIM 496. DIRECTED STUDY IN CRIMINOLOGY. (1-3)** Prerequisites: Junior standing and consent of department head. Individual and intensive reading and research in specific area of criminology in close cooperation with supervising faculty. Course pass required.

**CRIM 499. SENIOR SEMINAR. (1)** Prerequisite: Senior standing. This course integrates fundamental concepts, theories, research methods, and substantive subject areas learned during the study of criminology. This course serves as the capstone course for the criminology major. (Grading: Pass / Fail)

### CS – COMPUTER SCIENCE SCHOOL OF ENGINEERING AND APPLIED SCIENCES

**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 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. **Colonnade F-QR | QR**

**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: Eligibility for MATH 116. 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. (3)** 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)** Prerequisites: 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. 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 221. COMPUTER SCIENCE II. (4)** Prerequisites: CS 180 with grade of C or better, and eligibility to enroll in a calculus course based on criteria developed by the Department of Mathematics. 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 239. PROBLEM SOLVING WITH COMPUTATIONAL TECHNIQUES. (3)** Prerequisites: MATH 117 with a grade of "C" or better or placement into a science calculus course. 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 245. INTRODUCTION TO A COMPUTER PROGRAMMING LANGUAGE. (1.5)** Prerequisites: A grade of "C" or better in CS 146 (or equivalent) or 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 250. SOCIAL IMPLICATIONS OF COMPUTING. (1.5)** Corequisite: 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)** Prerequisites: CS 221 with a grade of "C" or better. 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 with a grade of "C" or better. Introductory course in web programming and web application development. Provides students with essential skills for developing basic client-side and server-side applications.

**CS 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** Prerequisite: Ogden Research Scholar, or 3.2 grade point average at the end of freshman year, or Ogden College 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 toward any major or minor). Equivalent to BIOL 295, CHEM 295, ENGR 295, GEOL 295, MATH 295, and PHYS 295.

**CS 299. INTRODUCTION TO RESEARCH IN COMPUTER SCIENCE. (1-3)** Prerequisites: A "B" or better in CS 180 and 221 or consent of instructor. Directed research in computer science through reading, programming, and / or other problem solving activities under the guidance of a faculty member. May be repeated up to a total of 6 credit hours.

**CS 315. INTRODUCTION TO UNIX. (3)** Prerequisite: CS 221 (corequisite) or permission of instructor. 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)** Prerequisite: CS 221 with a grade of "C" or better. Advanced assembly programming, instruction sets, processor I / O and bus protocols, memory management, system performance, parallelism, and advanced systems.

**CS 339. COMPUTER SCIENCE III. (3)** *Prerequisites: Grades of "C" or better in both CS 221 and MATH 136.* Finite and discrete structures, including basic proof techniques, algorithm analysis, graph concepts and algorithms, with their applications in computer science.

**CS 351. DATABASE MANAGEMENT SYSTEMS I. (3)** *Prerequisite: A grade of "C" or better in CS 221.* An introduction to relational database management systems and their applications. Topics include relational model, relational algebra, SQL, indexes, security, integrity rules, effective database design methods, and database applications.

**CS 360. SOFTWARE ENGINEERING I. (3)** *Prerequisite: A grade of "C" or better in CS 221 and COMM 145.* 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.

**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 hours credit in the major or minor.

**CS 370. XML AND WEB PROGRAMMING. (3)** *Prerequisites: CS 270 and CS 339 with grades of C or better.* 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)** *Prerequisites: 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 372. MOBILE APP DEVELOPMENT. (3)** *Prerequisites: Grade of C or better in CS 221.* Introduces and explores mobile app programming, important environment features; and mobile app development frameworks, architecture, and design.

**CS 381. INTRODUCTION TO COMPUTER NETWORKS. (3)** *Prerequisite: CS 221 with a grade of "C" or better.* 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 221 and COMM 145.* A study of principles and common features of programming languages. Topics include syntax, semantics, binding, scope, overloading, finite automata, formal languages, ect.

**CS 389. PRACTICUM IN COMPUTER SCIENCE. (1-4)** *Prerequisites: A grade of "C" or better in CS 351 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 351, ENG 307, and COMM 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. (3)** *Prerequisites: MATH 237 or 307 or 310, and CS 180 or CS 146 all with grades of C or better or consent of instructor.* Roots of equations, polynomial approximation and interpolation, numerical differentiation and integration. Computer solutions of problems will be required. Equivalent to MATH 405.

**CS 406. NUMERICAL ANALYSIS II. (3)** *Prerequisites: MATH 137, and MATH 237 or MATH 307 or MATH 310, and CS 180 or CS 146, all with grades of "C" or better.* The solution of linear system by direct and iterative methods, matrix inversion, the calculation of eigenvalues and eigenvectors or matrices. Initial and boundary value problems in ordinary differential equations. Computer solution of problems will be required.

**CS 421. DATA STRUCTURES AND ALGORITHM ANALYSIS. (3)** *Prerequisites: A grade of "C" or better in CS 339 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 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 II. (3)** *Grades of "C" or better in CS 339 and CS 351, 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 and CS 339, both with grades of "C" or better.* 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)** *Prerequisites: CS 325 and CS 381 with grades of C or better, 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: CS 360 and CS 339, both with grades of "C" or better.* Study of problems which have no plausible algorithmic solution. Their computer representations and solutions usually involve heuristics.

**CS 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 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.

**CS 496. CS SENIOR PROJECT AND PROFESSIONAL PRACTICE. (3)** *Prerequisites: CS 360 and 396 with grades of C or better.* 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.

#### CSCI – COMPUTER SCIENCE SCHOOL OF PROFESSIONAL STUDIES

**CSCI 145C. INTRODUCTION TO COMPUTING. (3)** *Prerequisite: Completion of PCC curriculum in algebra.* 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

#### CSJ – CENTER FOR CITIZENSHIP & SOCIAL JUSTICE DEPARTMENT OF DIVERSITY AND COMMUNITY STUDIES

**CSJ 200. INTRODUCTION TO SOCIAL JUSTICE. (3)** An introductory study of theories, concepts and strategies of social justice, including individual action, policy, advocacy, and collective action. **Colonnade E-SB | SB**

## COURSE DESCRIPTIONS

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**CSJ 301. SEMINAR IN SOCIAL JUSTICE. (1-3)** An examination of current social problems or issues and a consideration of possible courses of action to address the problems or issues. Selected courses may include direct action or organizing for direct action. Repeatable up to six hours.

**CSJ 380. TRENDS SHAPING OUR FUTURE: LOCAL AND GLOBAL PERSPECTIVES. (3)** *Prerequisites: Sophomore standing; and good standing in the Honors College; or 3.2 GPA; 21 hours of Foundations and Explorations Courses, or junior status, or permission of instructor.* An interdisciplinary examination of significant environmental, demographic, political, technological, and economic trends that will shape the world over the next several decades. Issues are examined on both a local and global scale. **Colonnade K-LG**

**CSJ 435. REIMAGINING CITIZENSHIP. (3)** *21 hours of Foundations and Explorations Courses, or junior status.* An analysis of the contestations, inclusions and exclusions produced through multiple deployments of the concept of citizenship. **Colonnade K-SC**

**CSJ 499. SOCIAL JUSTICE CAPSTONE. (1-3)** *Prerequisite: CSJ 200 or permission of instructor.* A capstone experience in which students engage in and reflect upon public work. Repeatable up to six hours.

### DANC – 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**

**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. **Colonnade E-AH | AH**

**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**

**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.

**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**

**DANC 211. BALLET II. (2)** *Prerequisite: DANC 111 or 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**

**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.

**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**

**DANC 235. DANCE IMPROVISATION. (2)** A guided exploration of dance oriented physical improvisation technique. **Course Fee**

**DANC 300. DANCE COMPANY. (1)** *Prerequisite: By audition only. Corequisites: Must be concurrently enrolled in two appropriate Jazz, Ballet or Modern Technique courses per semester or by permission of instructor.* 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 301. DANCE PEDAGOGY. (3)** Study and practice of teaching methods and skills applicable to the teaching of dance technique.

**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. **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.

**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. Repeatable for a total of 8 credit hours.

**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**

**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 360. DANCE IN CULTURE: MOVING HISTORY. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Survey of world dance forms, emphasizing social, cultural and aesthetic principles defining these forms. Gender, racial, political and religious orientations shaping dance history are examined. **Colonnade K-SC**

**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 445. DANCE ANATOMY AND KINESIOLOGY. (3)** *Prerequisite: 300-level dance technique course or permission of the instructor.* An analysis of the principles of anatomy and kinesiology for dancers.

**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.

## DCS

### DEPARTMENT OF DIVERSITY AND COMMUNITY STUDIES

**DCS 300. PUBLIC PROBLEM SOLVING. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Investigation of historical perspectives and theoretical dimensions of public problem solving, with attention to the development of collective power, capacities, and responsibilities.

#### **Colonnade K-SY**

**DCS 360. PLACE, COMMUNITY, AND RESILIENCE. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Exploration of the multidisciplinary interconnections of place, identity, and sense of place within organizational and community structures, with attention to the ways systems bounce back under unexpected social and environmental crises. **Colonnade K-SC**

**DCS 363. NARRATIVE, DISCOURSE, AND IMPRISONMENT. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Through fiction, memoir, and other narrative forms, an examination of the impact of discourse on how imprisonment, literal and metaphorical, shapes and is shaped by cultural forces. **Colonnade K-SY**

**DCS 399. SPECIAL TOPICS IN DIVERSITY & COMMUNITY STUDIES. (1-3)** A detailed study of a specialized topic, for students in the Diversity & Community Studies major. Repeatable up to a maximum of 9 hours.

**DCS 400. CAPSTONE IN DIVERSITY & COMMUNITY STUDIES. (3)** *Prerequisite: Major in Diversity & Community Studies and senior standing.* A senior capstone experience synthesizing learning and assessing the field of study for Diversity & Community Studies majors. Includes an exploration of career and graduate study opportunities as well as intensive research and analysis within a single area of diversity & community studies.

**DCS 495. DIRECTED STUDY IN DIVERSITY & COMMUNITY STUDIES. (1-3)** *Prerequisite: Permission of the instructor.* Supervised individual study and / or field-based experience in a topic of particular relevance to the major in Diversity & Community Studies. Repeatable up to a maximum of 6 hours.

## DENG – DEVELOPMENTAL ENGLISH

### DEPARTMENT OF ENGLISH

**DENG 050C. BASIC GRAMMAR AND PUNCTUATION. (1)** A refresher course covering the rules of grammar, punctuation, spelling, and sentence structure. (Grading: Pass / Fail)

**DENG 051C. WRITING FOR NON-NATIVE ENGLISH SPEAKERS. (3-6)** *Prerequisite: COMPASS Writing Skills Placement Test score of 59 or below or equivalent standardized test score.* A writing course designed to give non-native speakers of English preparation for ENG 100. A grade of "C" or better is a requirement for ENG 100. 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. **DE**

## 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 115. INDEPENDENT CLINICAL STUDY. (5-3)** *Prerequisite: Permission of instructor.* Designed to allow students to complete clinical requirements remaining from the previous semester. (Grading: Pass / Fail)

**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 212. 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 222. PREVENTIVE DENTAL HYGIENE CARE. (2)** *Corequisite: DH 270.* 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 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 230. ORAL HISTOLOGY AND EMBRYOLOGY. (3)** *Prerequisite: DH 212.* 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 270. 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.

## COURSE DESCRIPTIONS

**DH 271. CLINICAL DENTAL HYGIENE I. (4)** *Prerequisites: DH 270, 212 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 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 271.* 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 271.* 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.

**DH 323. RESEARCH METHODS. (3)** *Prerequisites: DH 303, PH 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. (3)** 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 371 and FACS 381.* *Additional special requirement: 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.* *Additional special requirement: Current Kentucky Dental Hygiene License.* 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.* *Additional special requirement: Current Kentucky Dental Hygiene License.* 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 270, 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.

**DH 370. CLINICAL DENTAL HYGIENE II. (5)** *Prerequisite: DH 271.* A clinical course closely correlated with oral diagnosis and oral pathology. Clinical activities include application of prophylactic technique to patients. Oral examination and charting, fluoride application, radiographic 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, self-directing clinician. Off campus field experiences are required; students responsible for own transportation.

**DH 371. CLINICAL DENTAL HYGIENE III. (5)** 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.

### DMA – DEVELOPMENTAL MATHEMATICS DEPARTMENT OF MATHEMATICS

**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 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. **DM**

### DRDG – DEVELOPMENTAL READING SCHOOL OF PROFESSIONAL STUDIES

**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. **DR**

**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) SCHOOL OF PROFESSIONAL STUDIES (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 Gordon Ford College of Business. Note: This course cannot be taken for credit after completing ECON 202 or 203. **Course Fee | Colonnade E-SB | SB**

**ECON 202 / ECO 202C. PRINCIPLES OF ECONOMICS (MICRO). (3)** 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. **Course Fee | Colonnade E-SB | SB**

**ECON 203 / ECO 203C. PRINCIPLES OF ECONOMICS (MACRO). (3)** 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. **Course Fee | Colonnade E-SB | SB**

**ECON 206 / ECO 206C. STATISTICS. (3)** *Prerequisites: ECON 202 or ECON 203 and MATH 123 or any calculus class or a Math ACT of at least 26 or a Math SAT of at least 610.* 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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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 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. **Course Fee**

**ECON 375. MORAL ISSUES OF CAPITALISM. (3)** *Prerequisite: ECON 150 or ECON 202 or 203, or consent of the instructor and 21 hours of Foundations and Explorations Courses, or junior status.* Survey course designed to study the moral issues and consequences of current and changing government policies regarding the operation of markets. **Course Fee | Colonnade K-SC**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**ECON 410. SEMINAR IN ECONOMICS. (3)** Special topics in economics of current interest. Class format varies with instructor. **Course Fee**

**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. **Course Fee**

**ECON 420. PUBLIC FINANCE. (3)** *Prerequisites: 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. **Course Fee**

**ECON 430. ENVIRONMENTAL AND RESOURCE ECONOMICS. (3)** *Prerequisite: ECON 150 or 202 or 203; 21 hours of Foundations and Explorations Courses, or junior status.* 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. **Course Fee | Colonnade K-LG**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**ECON 451. GAMES AND STRATEGY. (3)** *Prerequisite: ECON 202, ECON 203, and ECON 206 with a grade of "C" or higher.* An introduction to game theory analysis. We will develop the theoretical tools to analyze incentives and strategic behavior in individual and group decision making will develop. Emphasis will be placed on real-world applications and include, but is not limited to, bargaining under perfect and imperfect information, Nash equilibrium, pricing under oligopoly and auction theory. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**ECON 467. AMERICAN ECONOMIC HISTORY. (3)** *Prerequisites: ECON 202 and 203.* A study of America's 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. **Course Fee**

**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. **Course Fee**

**ECON 480. ECONOMIC FORECASTING. (3)** *Prerequisites: ECON 202, 203 and 465 or permission of instructor.* A survey of forecasting methods, their characteristics, appropriate applications, and evaluation. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

## COURSE DESCRIPTIONS

**ECON 496. INTERNATIONAL MONETARY ECONOMICS. (3)** *Prerequisite:* ECON 202 and 203. 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. **Course Fee**

**ECON 497. SENIOR SEMINAR IN MATHEMATICAL ECONOMICS. (1)** *Prerequisites:* 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. **Course Fee**

**ECON 499. SENIOR ASSESSMENT. (1)** *Prerequisites:* Senior standing, ECON 465 or ECON 480, and ECON 302 or ECON 303. A capstone course that provides an opportunity to demonstrate knowledge of economics and discuss educational and career opportunities beyond the baccalaureate degree. **Course Fee**

### EDU – EDUCATION SCHOOL OF TEACHER EDUCATION

**EDU 175. UNIVERSITY EXPERIENCE. (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, 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. Equivalent to AGED 250.

**EDU 200. BECOMING AN EFFECTIVE GLOBAL CITIZEN. (3)** *Prerequisite:* Completed 21 hours prior to enrollment. This course will help students learn highly effective skills across personal, social, and cultural perspectives. Students will examine how their own choices affect others.

**EDU 385. CLIMATE, RESOURCES, & SOCIETY. (3)** *Prerequisite:* GEOG 103, GEOG 110, or GEOG 280 or permission of instructor. 21 hours of Foundations and Explorations Courses, or junior status. Discussion of global climate change from a societal and resources perspective; particularly how humans affect global climate change through population size, natural resource use, policy implementation, personal behavior, and societal norms, and vice versa. Equivalent to GEOG 385. **Colonnade K-SC**

**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 490. INTERNATIONAL STUDENT TEACHING. (1)** *Prerequisites:* All professional education courses must be completed including the 3 credit hour Student Teaching Seminar and 10 credit hours of student teaching; a minimum overall GPA of 3.0; a completed and submitted Study Abroad application with a letter of interest, two letters of recommendation from WKU faculty members to the Director of Teacher Services, and a completed successful interview with the faculty selection team. This course is part of the professional semester and is an elective taken during the senior year after successfully completing 12 weeks of stateside student teaching. Students will teach classes as assigned, serve as teacher assistants, observe, and teach English as appropriate in various international classrooms for (4) weeks.

**EDU 491. PRACTICUM FOR TEACHER CANDIDATES. (1)** *Prerequisites:* Department head recommendation; instruction 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 SCHOOL OF ENGINEERING AND APPLIED SCIENCES

**EE 101. ELECTRICAL ENGINEERING DESIGN I. (1)** *Corequisite:* 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. **Course fee**

**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. (3)** *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.

**EE 200. ELECTRICAL ENGINEERING DESIGN II. (2)** *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. **Course Fee**

**EE 210. CIRCUITS & NETWORKS I. (3.5)** *Prerequisite:* MATH 137 (C or better). *Prerequisite or 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. *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:* Completion of Electrical Engineering pre-major requirements and EE 200, or 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 Fee**

**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 and CS 239 with grade of "C" or better and EE 210. 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. ELECTRICAL ENGINEERING DESIGN IV. (2)** *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 for 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.* 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 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)** *Prerequisites: 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. (3.5)** *Prerequisites: EE 211, MATH 237, and 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 436. ELECTRIC MACHINES AND DRIVES. (3)** *Prerequisite: EE 473 and EE 345.* Introduction to principles and contemporary applications of electric machines and drive systems as they pertain to electric vehicles, wind turbines, residential appliances, etc. Topics include the principles of electromechanical energy conversion, switch mode power converters, DC and AC machines, designing feedback controller for motor drives, and speed or torque control of both DC and AC motor drives.

**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. 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.* 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)** *Prerequisite: EE 420. Corequisite: EE 450.* 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. (3.5)** *Prerequisites: EE 420 ("C" or better) or ME 310 ("C" or better) and MATH 307 or MATH 350 or MATH 370.* 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)** *Prerequisite: EE 420 ("C" or better) or ME 310 ("C" or better) and MATH 307 or MATH 350 or MATH 370.* 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)** *Prerequisite: EE 460.* A presentation of current topics of control systems theory that builds on the contents in EE 460.

**EE 465. ROBOTIC DESIGN. (3)** *Prerequisites: 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 and STAT 301. Corequisite: EE 475.* 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. ELECTROMAGNETICS I. (3)** *Prerequisites: MATH 331, MATH 237 (C or better), and PHYS 265 (C or better).* 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.* 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. OPTOELECTRONICS. (3)** *Prerequisites: EE 345 and EE 473.* Topics include basic wave optics, Snell's Law, 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)** *Prerequisite: 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.

#### 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 2.75 or higher, and admission to Teacher Education pending. Prerequisite or Corequisite: SPED 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, SPED 330 and ELED 345 with a grade of "C" or higher; and admitted to Teacher Education. Corequisites: 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 SPED 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 308, ELED 355, ELED 365, and ELED 407, all with grades of "C" or higher; completion of General Education Category D1 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 308, ELED 355, ELED 365, and ELED 407, all with grades of "C" or higher; completion of General Education Category D1 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. **Course Fee**

## COURSE DESCRIPTIONS

**ELED 407. MATERIALS AND METHODS IN SOCIAL STUDIES. (3)** *Prerequisites:* ELED 345 and SPED 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 465. SENIOR PROJECTS IN ELEMENTARY EDUCATION. (3)** *Prerequisites:* MATH 308, ELED 355, ELED 365, and ELED 407, all 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 70 days 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.

### EM – ENGINEERING MECHANICS SCHOOL OF ENGINEERING AND APPLIED SCIENCES

**EM 221. UK STATICS. (3)** *Prerequisite:* MATH 136. *Prerequisites 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. This course is delivered by the University of Kentucky.

**EM 222. WKU STATICS. (3)** *Prerequisite:* MATH 136. *Prerequisites or corequisites:* MATH 137 and 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. This course is to be delivered by the University of Kentucky.

**EM 303. WKU MECHANICS OF DEFORMABLE SOLIDS. (3)** *Prerequisites:* MATH 137 with a grade of C or better, EM 222 with a grade of C or better, PHYS 225 with a 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)** *Prerequisites:* EM 222 with a grade of C or better, MATH 331 (may be taken concurrently), PHYS 255 with a grade of C or better. 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.

### ENG/ENGL – ENGLISH DEPARTMENT OF ENGLISH

**ENG 051. WRITING FOR NON-NATIVE ENGLISH SPEAKERS. (3-6)** *Prerequisite:* COMPASS Writing Skills Placement Test score of 59 or below or equivalent standardized test score. A writing course designed to give non-native speakers of English preparation for ENG 100. A grade of "C" or better is a requirement for ENG 100. Equivalent to DENG 051C.

**ENG 100/ENGL 100C. INTRODUCTION TO COLLEGE WRITING. (3)** *Prerequisites:* Minimum score of 16 on English section of ACT or 60 on Compass Writing Skills Placement Test or successful completion of DENG 055 or DENG 051 with a grade of "C" or better. Students with ACT English scores of 16 and 17 or 60 to 73 on the Compass Writing Skills Placement Test will be required to attend an enhanced section of ENG 100 which includes 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. Equivalent to ENGL 100C. **Colonnade F-W1 | WC**

**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/ENGL 200C. 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. Equivalent to ENGL 200C. **Colonnade F-AH | AH**

**ENG 202. HONORS FORUM. (1)** An informal introduction to English honors. Topics vary by term.

**ENG 203. CREATIVE WRITING. (3)** *Prerequisites:* Colonnade Category F-AH. An introduction to the writing of various genres including poetry, fiction, creative nonfiction, and / or drama.

**ENG 204. 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 212. INTRODUCTION TO DIGITAL TEXTS AND MEDIA. (3)** *Prerequisites:* ENG 100. Students will study the rhetorical, critical, and ethical dimensions of digital composing, producing genres such as web-based videos, podcasts, blogs, websites, and video essays.

**ENG 290. ENGLISH TOPICS ABROAD. (1-3)** *Prerequisite:* Permission of instructor. This course focuses on special topics in English that are appropriate to study abroad sites, such as comparative literature or travel writing. Only taught in study abroad programs. Will not count for the English major. May be repeated twice, for a total of 9 hours.

**ENG 299. INTRODUCTION TO ENGLISH STUDIES. (3)** *Prerequisite:* Colonnade Category F-AH. 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/ENGL 300C. WRITING IN THE DISCIPLINES. (3)** *Prerequisites:* Colonnade Category F-AH. 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. **Colonnade F-W2 | WC**

**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.

**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 305. INTERMEDIATE POETRY WRITING. (3)** *Prerequisites:* 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)** *Prerequisite: Colonnade Category F-AH.* 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 312. READING AS A WRITER. (3)** *Prerequisites: ENG 203.* Restricted to English majors in the *Creative Writing Concentration*. A close reading of literary works and craft essays as well as analysis and emulation of forms and techniques of published literary writers for creative writing students.

**ENG 320. AMERICAN STUDIES I. (3)** *Prerequisite: Colonnade Category F-AH or the equivalent and 21 hours of Foundations and Explorations Courses, or junior status.* 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. **Colonnade K-SC**

**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 329. SPECIAL TOPICS IN CREATIVE WRITING. (3)** *Prerequisite: ENG 203.* A semester-long, detailed study of a specified topic in creative writing. May be repeated twice for a maximum of nine credit hours.

**ENG 333. MEDIEVAL LITERATURE. (3)** *Prerequisites: Colonnade Category F-AH.* Study of the literature of the Western Middle Ages from c. 500-1500. Non-English texts will be read in translation.

**ENG 339. SPECIAL TOPICS IN LITERATURE. (3)** *Prerequisite: Colonnade Category F-AH.* A semester-long, detailed study of a specified topic in literature. May be repeated twice for a maximum of nine hours credit.

**ENG 340. SPECULATIVE FICTION. (3)** *Prerequisite: Colonnade Category F-AH.* A survey of the development of the genre, including science fiction, and its relationship to main literary currents.

**ENG 349. SPECIAL TOPICS IN PROFESSIONAL WRITING. (3)** *Prerequisite: ENG 306 or 307.* A semester-long, detailed study of a specified topic in professional writing. May be repeated twice for a maximum of nine credit hours.

**ENG 354. HISTORY OF DRAMA TO 1640. (3)** *Prerequisite: Colonnade Category F-AH.* A comprehensive course which traces the major developments in drama from the ancient Greeks to 1640. Emphasis on representative dramatists and plays. Equivalent to THEA 354.

**ENG 355. HISTORY OF DRAMA SINCE 1640. (3)** *Prerequisite: Colonnade Category F-AH.* A continuation of ENG 354. Equivalent to THEA 355.

**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. Equivalent to THEA 358.

**ENG 359. TOPICS IN SCRIPTWRITING. (3)** *Prerequisites: FILM 250; or ENG 203 or ENG 350, and permission of instructor.* Focuses on topics in scriptwriting including, but not limited to, writing for television (narrative), writing the genre feature, and writing for the stage. Emphasizes the practices of contemporary scriptwriters in various genres. Repeatable once for a total of 6 credits. Equivalent to FILM 359.

**ENG 360. GAY AND LESBIAN LITERATURE. (3)** *Prerequisites: Colonnade Category F-AH.* Study of gay, lesbian, and queer literature with emphasis on critical theory and the concepts of sex and gender in global, cultural, and historical contexts.

**ENG 365. FILM ADAPTATION. (3)** *Prerequisites: Colonnade Category F-AH.* 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: Colonnade Category F-AH.* Examines the history and development of narrative film from the silent era to the present. Emphasis on specific narrative conventions of Hollywood cinema. Equivalent to FILM 366.

**ENG 369. INTERNSHIP I. (3)** *Prerequisite: Admission to departmental internship program.* Appropriate supervised work with a cooperating organization..

**ENG 370. U.S. ETHNIC LITERATURE. (3)** *Prerequisite: Colonnade Category F-AH.* Study of literature by Latina/o, Native American, Asian American and / or U.S. writers from additional racial and ethnic groups..

**ENG 381. SURVEY OF BRITISH LITERATURE I. (3)** *Prerequisite: Colonnade Category F-AH.* A study of selected works by representative authors reflecting the chronological development of British literature to 1789.

**ENG 382. SURVEY OF BRITISH LITERATURE II. (3)** *Prerequisite: Colonnade Category F-AH.* A study of selected works by representative authors reflecting the chronological development of British literature from 1789 to the present.

**ENG 385. STUDIES IN WORLD LITERATURE. (3)** *Prerequisite: Colonnade Category F-AH.* Study of global literatures with an emphasis on non-U.S. and non-British texts.

**ENG 387. STUDIES IN AUTOBIOGRAPHY. (3)** *Prerequisites: Colonnade Category F-AH.* An examination of the literary components and cultural context of autobiographical works, with particular emphasis on under-represented groups, gender, race, and class.

**ENG 388. POSTCOLONIAL STUDIES. (3)** *Colonnade Category F-AH and 21 overall hours of Colonnade Foundations and Exploration Courses.* A survey of postcolonial literature and theory, including works from Australia, India, Africa, the Caribbean, and the Middle East. **Colonnade K-LG**

**ENG 389. INTERNSHIP II. (3)** *Prerequisite: Admission to departmental internship program.* Appropriate supervised work with a cooperating organization.

**ENG 391. SURVEY OF AMERICAN LITERATURE I. (3)** *Prerequisite: Colonnade Category F-AH.* A study of selected texts reflecting the chronological development of American literature to 1865.

**ENG 392. SURVEY OF AMERICAN LITERATURE II. (3)** *Prerequisite: Colonnade Category F-AH.* A study of selected texts reflecting the chronological development of American literature from 1865 to the present.

**ENG 393. AFRICAN AMERICAN LITERATURE. (3)** *Prerequisite: Colonnade Category F-AH.* Study of literature by African American writers.

**ENG 394. KENTUCKY LITERATURE. (3)** *Prerequisites: Colonnade Category F-AH.* Selected texts by writers from and about the state of Kentucky.

**ENG 395. CONTEMPORARY U.S. LITERATURE. (3)** *Prerequisite: Colonnade Category F-AH.* Examine trends in recent literature across multiple genres.

**ENG 396. MYTHOLOGY. (3)** *Prerequisite: Colonnade Category F-AH.* Greek, Roman and Norse myths and their influence on art and literature.

**ENG 398. HEMINGWAY AND FAULKNER. (3)** *Prerequisites: Colonnade Category F-AH 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.

**ENG 399. TOPICS IN ENGLISH. (3)** *Prerequisite: Colonnade Category F-AH.* 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)** *Prerequisites: 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 and 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 200 or Colonnade Category F-AH.* 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)** *Prerequisite: ENG 104 or ENG 302 or ENG 204, or equivalent with a grade of C or higher.* 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.

## COURSE DESCRIPTIONS

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**ENG 408. PSYCHOLINGUISTICS AND SOCIOLINGUISTICS. (3)** *Prerequisites: ENG 200 or Colonnade Category F-AH, 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 200 or Colonnade Category F-AH.* 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: Colonnade Category FW-2 and either ENG 204 or ENG 302.* 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. THEORIES OF RHETORIC AND PERSUASIVE WRITING. (3)** *Prerequisites: Colonnade Category F-W2.* A survey of the history of rhetorical theory from the classical to the contemporary period with emphasis on how theories reflect and guide persuasion in public and written discourse.

**ENG 413. CREATIVE WRITING CAPSTONE. (3)** *Prerequisites: 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. PROFESSIONAL WRITING CAPSTONE. (3)** *Prerequisites: 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 416. LITERATURE / EST CAPSTONE. (3)** *Prerequisites: ENG 299 and senior standing.* Capstone experience for senior literature concentration and English for Secondary Teaching majors. Will synthesize experience in discipline, conduct advanced study of literary topic(s), and explore professional opportunities.

**ENG 430. 19<sup>TH</sup> CENTURY AMERICAN LITERATURE. (3)** *Prerequisite: Colonnade Category F-AH.* Seminar in 19<sup>th</sup> Century American Literature; course topics will vary.

**ENG 455. AMERICAN DRAMA. (3)** *Prerequisites: Colonnade Category F-AH.* This course deals with the development of American drama from Colonial productions to present-day plays. Equivalent to THEA 455.

**ENG 457. BRITISH LITERATURE SINCE 1900. (3)** *Prerequisites: Colonnade Category F-AH.* A study of British fiction, poetry, and / or drama produced between 1900 and the present. Topic will vary.

**ENG 459. MODERN DRAMA. (3)** *Prerequisites: Colonnade Category F-AH.* A selected study of dramatic literature since Ibsen with emphasis on evolving developments and trends in world theatre. Equivalent to THEA 459.

**ENG 460. LITERARY THEORY AND CRITICISM. (3)** *Prerequisites: Colonnade Category F-AH 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. May be taken twice as long as genres differ. Equivalent to FILM 465.

**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. Equivalent to FILM 466.

**ENG 467. VISITING WRITER SUMMER WORKSHOP. (3)** *Prerequisites: At least one creative writing class beyond ENG 203 Creative Writing 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: Colonnade Category F-AH.* A study of selected literary works from sixteenth- and seventeenth-century England, with attention to the historical, theoretical, and aesthetic conditions that shaped the imaginative development of English literature.

**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: Colonnade Category F-AH.* Representative works of Chaucer, with emphasis on the Canterbury Tales; some attention to the medieval background.

**ENG 482. SHAKESPEARE. (3)** *Prerequisites: Colonnade Category F-AH.* A study of selected works by Shakespeare, situating them in their cultural moments and considering what has made them so durable, adaptable, deeply familiar, and popular in successive generations.

**ENG 484. BRITISH ROMANTICISM. (3)** *Prerequisites: Colonnade Category F-AH.* British literature and culture from the late 18<sup>th</sup> and early 19<sup>th</sup> centuries.

**ENG 486. THE EIGHTEENTH CENTURY. (3)** *Prerequisites: Colonnade Category F-AH.* The concentrated study of eighteenth century literature, forms, and developments.

**ENG 487. DANTE'S DIVINE COMEDY AND ITS INFLUENCES. (3)** *Prerequisites: Colonnade Category F-AH.* An intensive study of *The Divine Comedy*, in English translation, along with Dante's major sources and analogues.

**ENG 488. VICTORIAN LITERATURE AND CULTURE. (3)** *Prerequisites: Colonnade Category F-AH.* Studies in Victorian poets and novelists, emphasizing the rise and fall of the British Empire and the birth of mass media.

**ENG 489. THE BRITISH NOVEL. (3)** *Prerequisites: Colonnade Category F-AH.* A comprehensive exploration of English-language novels, from the Mother Country to the Colonies. Emphasis on genre development as a reflection of contemporary history.

**ENG 490. THE AMERICAN NOVEL. (3)** *Prerequisites: Colonnade Category F-AH.* Study of the American novel as a genre. Topic will vary by semester.

**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: Colonnade Category F-AH.* 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:* Colonnade Category F-AH. Selected texts by writers from and about the United States South.

**ENG 497. WOMEN'S LITERATURE. (3)** *Prerequisites:* Colonnade Category F-AH.. Study of the literary history, criticism, and theory of women's writing, with an emphasis on American and British 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.

#### ENGR – ENGINEERING

##### SCHOOL OF ENGINEERING AND APPLIED SCIENCES

**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)** *Prerequisite:* Ogden Research Scholar, or 3.2 grade point average at the end of freshman year, or Ogden College 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.

**ENGR 360. MODELING AND SIMULATION OF DYNAMIC SYSTEMS. (3)** *Prerequisite:* EE 210, and MATH 331. *Prerequisite / Corequisite:* MATH 307 or MATH 370. This course presents an introduction to mathematical modeling of dynamic systems. It takes a unified approach to linear system modeling with lumped parameters for various physical systems in both time and frequency domains. An introduction to system identification will be also presented.

**ENGR 400. PRINCIPLES OF SYSTEMS ENGINEERING. (3)** *Prerequisites:* Junior standing in an engineering discipline; and STAT 301 or CE 305, and EE 210 or EM 221 or EM 222.. An overview of the field and relevant principles of systems engineering. Topics will prepare students to apply systems engineering theory to the solution of complex system-based engineering problems.

**ENGR 490. SENIOR SEMINAR. (2)** *Prerequisites:* Senior standing in an engineering discipline and consent of instructor. Seminar course focused on professional topics including project management and the proposal for a multidisciplinary engineering capstone project.

**ENGR 491. SENIOR PROJECT. (3)** *Prerequisites:* ENGR 490. Work in multidisciplinary student teams to execute project designed during ENGR 490. Must be taken in the semester immediately following ENGR 490.

#### ENT – ENTREPRENEURSHIP

##### DEPARTMENT OF MANAGEMENT

**ENT 112. INTRODUCTION TO ENTREPRENEURSHIP. (3)** An introduction to and an exploration in the study of entrepreneurship. Topics include identifying new business opportunities and access to resources, start-up process, and careers. Readings and hand-on business projects appropriate for an introductory course are used.

**ENT 308. INNOVATION MANAGEMENT. (3)** *Prerequisite:* Junior standing. A study of innovation identification, capitalization and industry dynamics in entrepreneurial and intrapreneurial contexts. **Course Fee**

**ENT 312. ENTREPRENEURSHIP. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. Examines the entrepreneur as the basic building block of the economic system via the discovery or identification of opportunities. Emphasis is placed on identifying and defending feasible opportunities within the industry and market, while recognizing and managing the complex systems in which entrepreneurs live and work that motivate or constrain innovation. **Course Fee | Colonnade K-SY**

**ENT 363. FAMILY BUSINESS MANAGEMENT. (3)** *Prerequisite:* Junior standing. An exploration of the unique managerial issues, dynamics and competitive positioning, and contribution to the economy associated with family businesses. Emphasis placed on problems in organization, management, and succession in family business contexts. Open to business and non-business majors. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**ENT 463. SMALL BUSINESS MANAGEMENT. (3)** *Prerequisites:* ECON 150 or ECON 202 or ECON 203, ACCT 200, MKT 220 and ENT 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. **Course Fee**

**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 not-for profit organizations with duties relating to entrepreneurship. Projects must be approved by the Management Chair. **Course Fee**

**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. **Course Fee**

#### 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 PH 280. **Colonnade E-NS | NS**

**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 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)** *Corequisite:* 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 DESCRIPTIONS

**ENV 375. INTRODUCTION TO WATER RESOURCES. (3)** 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)** *Prerequisites:* 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 460. ENVIRONMENTAL MANAGEMENT. (3)** *Prerequisites or corequisites:* ENV 360, 410, and 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 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 HEALTH SEMINAR. (1)** *Prerequisite:* Senior standing. Current environmental health issues discussed, including identification of possible careers in environmental health 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 ENV 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.

### EXS – EXERCISE SCIENCE

#### SCHOOL OF KINESIOLOGY, RECREATION, AND SPORT

**EXS 122. FOUNDATIONS OF KINESIOLOGY. (3)** An introductory study of the historical, philosophical, and scientific foundations of kinesiology; aspects of physical education, exercise science, and sport will be covered. Equivalent to PE 122.

**EXS 223. INTRODUCTION TO EXERCISE SCIENCE. (3)** *Prerequisite:* Declared Exercise Science major. Introduction to the different areas of study contained within the field of exercise science. Students will be introduced to the application of exercise science to fitness, health, and disease. They will also be introduced to field and laboratory measurement techniques.

**EXS 296. PRACTICUM IN EXERCISE SCIENCE. (3)** *Prerequisites or corequisite:* EXS 223 and a declared Exercise Science major. Work experience in Exercise Science practical settings in progression towards completion of the major. Liability insurance required. Must be repeated for a maximum of 4 hours taken twice with each practicum experience in a different subfield of Exercise Science.

**EXS 310. KINESIOLOGY. (3)** *Prerequisite:* BIOL 131. Study of the anatomical, mechanical, and neuromuscular bases of human movement.

**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)** *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 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. MEASUREMENT AND EVALUATION IN KINESIOLOGY. (3)** *Prerequisites:* MATH 116 and EXS 223 and declared Exercise Science major and junior standing. A study of measurement tools and evaluation procedures used in the fields associated with kinesiology, including physical education, exercise science, and biomechanics.

**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. Students will be responsible for their own transportation to designated or assigned sites. **Course Fee**

**EXS 412. EXERCISE TESTING & PRESCRIPTION. (0-4)** *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. Students must provide their own transportation to designated or assigned sites. **Course fee**

**EXS 420. CLINICAL EXERCISE PHYSIOLOGY. (0-4)** *Prerequisites:* 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 and risk stratification, and the ability to recognize and respond to emergency procedures. **Course fee**

**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)** *Prerequisites:* 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. (0-4)** *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: GERO 100 or EXS 223.* 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 456. INDIVIDUAL ADVANCED STUDIES IN KINESIOLOGY. (3)** Specific and detailed analysis of practical problem areas in Kinesiology. Equivalent to PE 456.

**EXS 485. EXERCISE SCIENCE STUDY ABROAD. (1-3)** *Prerequisites: 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)** *Prerequisites: EXS 296 and EXS 412 (pre or corequisite) and declared Exercise Science major and minimum cumulative GPA of 2.5 at the time of registration for EXS 496.* 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.

**EXS 498. CAPSTONE RESEARCH EXPERIENCE IN EXERCISE SCIENCE. (6)** *Prerequisites: EXS 325, 412, senior standing, declared exercise science major and minimum cumulative GPA of 2.5 at time of registration, and permission of instructor.* This course is designed to allow students who have a strong interest in the research process, and who intend to pursue graduate studies in exercise physiology or a related discipline, to gain valuable laboratory experience by working directly with an exercise science faculty member on a semester-long research project. Students may take this course in place of completing an internship.

**FACS– FAMILY AND CONSUMER SCIENCES**  
**DEPARTMENT OF APPLIED HUMAN SCIENCES (FACS)**

**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)** *Prerequisites/corequisite: FACS 191 or instructor permission.* 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 281. DESIGN FOUNDATIONS FOR FAMILY AND CONSUMER SCIENCES EDUCATION. (3)** The application of design principles and elements as related to FCS state and national standards. Students will utilize technology in the application of design in projects suitable for middle and high school students. Field experiences at student's expense.

**FACS 282. INTRODUCTION TO FAMILY AND CONSUMER SCIENCES EDUCATION. (3)** Introduction to the profession of Family and Consumer Sciences Education including examination of the role, responsibility and dispositions of effective teachers, characteristics of the teaching / learning environment and introductory methods. Participation in youth organizations and professional organizations will be included. Observations and Praxis Exam at student expense.

**FACS 292. DIVERSITY IN EARLY CHILDHOOD PROGRAMS. (3)** *Prerequisite: FACS 191 or instructor permission.* 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)** *Prerequisite: 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 arranging 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)** *Prerequisite / corequisite: 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)** *Prerequisite: Junior standing.* Study of issues affecting individual and family well-being. Interpersonal relationships and communication skills necessary to achieve quality of life are addressed.

**FACS 312. PROFESSIONAL ETHICS FOR FAMILY LIFE. (3)** Exploration of professional and family ethical codes of conduct, dilemmas and moral decisions. Real life application using ethical decision-making, problem-solving, and critical thinking for interacting within family relationships and human services professions.

**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 335. INFANT/TODDLER DEVELOPMENT AND CURRICULUM. (3)** *Prerequisite: FACS 193 or instructor permission.* Study of infant and toddler physical, cognitive, language, and social/emotional development. Application of child development to developmentally appropriate curriculum, classroom, and teaching practices. Practical experiences in a field setting; students are responsible for providing their own transportation.

**FACS 336. PRESCHOOL AND KINDERGARTEN CHILD DEVELOPMENT AND CURRICULUM. (3)** *Prerequisite: FACS 193 or instructor permission.* Study of early childhood (preschool and kindergarten) physical, cognitive, language, and social/emotional development. Application of child development to developmentally appropriate curriculum, classroom and teaching practices. Practical experiences in a field setting; students are responsible for providing their own transportation.

**FACS 380. PROFESSIONAL PRESENTATION TECHNIQUES IN FAMILY AND CONSUMER SCIENCES. (3)** *Prerequisite: Major or minor in Family and Consumer Sciences.* Study of organization, development, delivery and evaluation of various presentation and demonstration techniques, including technology, as they relate to all areas of family and consumer sciences. Field trips at student's expense.

**FACS 381. METHODS AND MATERIALS IN FAMILY AND CONSUMER SCIENCES EDUCATION. (3)** *Prerequisites: FACS 380 and MGE 275 and proof of passing Praxis Core for FACS Education major 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 experience will be required. Students are responsible for their own transportation.

## COURSE DESCRIPTIONS

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**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)** *Prerequisite: 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: Junior standing or higher.* 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 422. ADOLESCENT PSYCHOLOGY. (3)** *Prerequisites: PSY 100 or FACS 191 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. Equivalent to PSY 422.

**FACS 481. ADVANCED METHODS IN FAMILY AND CONSUMER SCIENCES EDUCATION. (3)** *Prerequisites: (a.) Senior standing and (b.) FACS 381 or consent of instructor.* 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 various perspectives of family life education, principles and practices, including program planning, implementation, and evaluation. Field experiences required at the student's expense.

**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. FAMILY AND 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 191 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)** *Prerequisite: 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. FAMILY POLICY ANALYSIS. (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 100. FILM INDUSTRY AND AESTHETICS. (3)** *Prerequisite: Restricted to film majors.* Introduction to the film industry and aesthetics of cinematic visual storytelling, considered from both studio and independent practitioners' perspectives.

**FILM 155. FILM ATTENDANCE. (0)** *Prerequisite: Restricted to film majors.* Attendance at 8 film screenings or related events within one semester from a film program approved list. Grading: Pass / Fail.

**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. **Colonnade E-AH | AH**

**FILM 202. BASIC FILM PRODUCTION. (3)** *Prerequisites: FILM 100 and FILM 201.* Introduction to film production equipment and on-set crew positions. Practical, hands-on experience rotating through crew positions in a workshop setting. **Course Fee**

**FILM 250. SCREENWRITING. (3)** *Prerequisites: FILM 201 or BCOM 325.* A concentrated study in the fundamentals of screenwriting for narrative film: conflict, character, structure, plot, dialogue, and subtext. Emphasis on visual storytelling through short screenplays. **Course Fee**

**FILM 282. FILM PRODUCTION WORKSHOP I. (3)** *Prerequisites: FILM 202.* 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. **Course Fee**

**ENG 359. TOPICS IN SCRIPTWRITING. (3)** *Prerequisites: FILM 250; or ENG 203 or ENG 350, and permission of instructor.* Focuses on topics in scriptwriting including, but not limited to, writing for television (narrative), writing the genre feature, and writing for the stage. Emphasizes the practices of contemporary scriptwriters in various genres. Repeatable once for a total of 6 credits. Equivalent to ENG 359.

**FILM 366. HISTORY OF NARRATIVE FILM. (3)** *Prerequisites: Colonnade Category F-AH.* Examines the history and development of narrative film from the silent era to the present. Emphasis on specific narrative conventions of Hollywood cinema. Equivalent to ENG 366.

**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 376. CINEMATOGRAPHY. (3)** *Prerequisite: FILM 282 and BCOM 366.* A concentrated study in the fundamentals of cinematography: capture / presentation formats, lighting, camera, exposure, composition, and color grading. Emphasis on visual storytelling through short filmed projects. **Course Fee**

**FILM 377. FILM SOUND. (3)** *Prerequisite: FILM 282 or BCOM 366.* A concentrated study in the fundamentals of audio for narrative film: properties of sound, field and studio recording, mixing, and audio post-production. Emphasis on audio / visual storytelling through short projects. **Course Fee**

**FILM 378. FILM DIRECTING. (3)** *Prerequisites: FILM 250, FILM 282, PERF 101, and BCOM 366.* A concentrated study in the fundamentals of directing for narrative film: script analysis, casting, staging, working with actors, camerawork, editing. Emphasis on visual storytelling through short filmed projects. **Course Fee**

**FILM 379. FILM PRODUCING. (3)** *Prerequisites: FILM 250, FILM 282, and BCOM 366.* A concentrated study in the fundamentals of producing for film: developing ideas, script evaluation, fundraising, budgeting, scheduling, and production management. Emphasis on creative and managerial skills through short projects.

**FILM 382. FILM WORKSHOP II. (3)** Prerequisites: FILM 250 and FILM 282 and BCOM 366. A continuation of the intensive, hands-on workshop experience begun in FILM 282. Specific focus of study to be determined in consultation with instructor. Emphasis on techniques and strategies relevant to producing independent short-form cinema. **Course Fee**

**FILM 399. SPECIAL TOPICS IN FILM. (3)** A detailed study of special topics in film. May be repeated with change of content.

**FILM 450. FEATURE WRITING. (3)** Prerequisite: FILM 250. An advanced, intensive study of the techniques of screenwriting for feature films: outlines, treatments, character, act structure, subplots. Emphasis on visual storytelling through completion of a feature screenplay. **Course Fee**

**FILM 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. May be taken twice as long as genres differ. Equivalent to ENG 465.

**FILM 466. FILM THEORY. (3)** Prerequisites: FILM / 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. Equivalent to ENG 466.

**FILM 469. TOPICS IN WORLD CINEMA. (3)** Prerequisite: FILM 369. An advanced, in-depth study of world cinema. Subjects might include national cinemas, directors, or select genres, movements or periods. Viewings of representative films will be accompanied by readings on history / culture.

**FILM 482. FILM WORKSHOP III. (3)** Prerequisites: FILM 376, 377, 378, and 379. Senior-level practicum. Specific focus of study to be determined in consultation with instructor. Emphasis on film and video techniques and strategies learned across the entire program of study of the film major. May be repeated once for additional credit. **Course Fee**

**FILM 486. FILM STUDIES CAPSTONE. (3)** Prerequisite: Major in film and senior standing. A senior capstone experience synthesizing and assessing the complete field of study for film majors. Emphasis on independent research and writing. Includes an exploration of career and graduate study opportunities as well as intensive research and analysis within a single area of film studies.

#### FIN / FINC – FINANCE

DEPARTMENT OF FINANCE (FIN)

SCHOOL OF PROFESSIONAL STUDIES (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. **Course Fee | Colonnade E-SB | SB**

**FIN 300. CAREER READINESS IN FINANCE. (1)** Prerequisites: Completion of or current enrollment in FIN 330; junior standing and reference code 664 or 664P. Introduction to preparation for a career in Finance including professional writing skills, professional resumes and cover letters; oral communications; interviewing skills; goal setting; ethical standards; and professional networking. This course is limited to juniors and seniors in the Finance program. Assignments may include travel. **Course Fee**

**FIN 330. PRINCIPLES OF FINANCE. (3)** Prerequisites: ACCT 200, MATH 123 or any calculus class or a Math ACT of at least 26 or a Math SAT of at least 310, 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. **Course Fee**

**FIN 331. APPLIED INVESTMENTS. (3)** Covers the basics of investing, emphasizing the management of personal investments, such as stocks, bonds and mutual funds. Utilizes investment-related web sites. **Course Fee**

**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. **Course Fee**

**FIN 350. RISK MANAGEMENT AND INSURANCE. (3)** 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. **Course Fee**

**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. **Course Fee**

**FIN 400. PERSONAL FINANCIAL PLANNING PRACTICE MANAGEMENT. (2)** Prerequisites: Completion of or current enrollment in FIN 331, FIN 332, and FIN 444 Restricted to B.S. Finance (Financial Planning track) majors and Financial Planning Certificate enrollees. Corequisite: FIN 401. Counseling and communication techniques, as well as interviewing strategies for use in financial planning settings. Introduction to regulatory compliance as packages for financial planning and investment portfolio applications. Review of business models and staffing. **Course Fee**

**FIN 401. PERSONAL FINANCIAL PLANNING PRACTICE MANAGEMENT LAB. (1)** Prerequisites: Completion of or current enrollment in FIN 331, FIN 332, and FIN 444. Restricted to B.S. Finance (Financial Planning track) majors and Financial Planning Certificate enrollees. Corequisite: FIN 400. A laboratory course correlated with FIN 400 for financial planning majors emphasizing the use of professional software packages for financial planning and investment management. **Course Fee**

**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. **Course Fee**

**FIN 433. FINANCIAL MARKETS AND INSTITUTIONS. (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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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) **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**FIN 449. PRACTICUM IN PORTFOLIO MANAGEMENT. (3)** Prerequisites: 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. May be repeated for credit. **Course Fee**

## COURSE DESCRIPTIONS

**FIN 450. FINANCIAL PLAN DEVELOPMENT. (3)** *Prerequisites:* FIN 331, 332, 350, 444, 445, ACCT 330 (Courses may be taken concurrently with departmental approval). The student will be able to demonstrate understanding of financial planning by successfully formulating and presenting a comprehensive financial plan. **Course Fee**

**FIN 499. SENIOR ASSESSMENT IN FINANCE. (0-1)** *Prerequisites:* Senior standing, enrolled in last regular semester of coursework (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. (Grading: Pass / Fail) **Course Fee**

### FLK—FOLK STUDIES

#### DEPARTMENT OF FOLK STUDIES AND ANTHROPOLOGY (FLK)

**FLK 275. 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 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. **Colonnade E-AH | AH**

**FLK 280. 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.

**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 330. CULTURAL CONNECTIONS AND DIVERSITY. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. Service learning course that examines the diversity of American culture and engages students in activities to develop skills in working with a variety of cultural groups. **Colonnade K-SC**

**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 341. PEOPLE AND CULTURES OF ASIA. (3)** Study 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. Equivalent to ANTH 341.

**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 AFAM / ANTH 350.

**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.

**FLK 373. FOLKLORE AND THE MEDIA. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. Variety and characteristics of folklore in the media including newspapers, television, magazines, comics, movies, photographs, cartoons, and advertisements. **Colonnade K-LG**

**FLK 377. AFRICAN-AMERICAN FOLKLORE. (3)** Oral, written, and material folk traditions of African-Americans, with emphasis on the United States and the Caribbean. Equivalent to AFAM 377.

**FLK 378. SOUTHERN APPALACHIAN FOLKLORE. (3)** Folklore 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 388. FOODWAYS. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. Exploration of the relationship between food and culture. Equivalent to ANTH 388. **Colonnade K-LG**

**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 AFAM 410 and ANTH 410.

**FLK 434. HISTORIC PRESERVATION. (3)** (See GEOG – Geography and Geology.) Equivalent to GEOG 434.

**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 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 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 FOLKLORE. (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—FRENCH

#### DEPARTMENT OF MODERN LANGUAGES (FREN)

**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. May be repeated for a total of three credits.

**FREN 101. 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.

**FREN 102. ELEMENTARY FRENCH II. (3)** *Prerequisite:* FREN 101 or demonstrated proficiency of Novice Mid. Continuation of the development of the four basic skills and cultural insights. **Course Fee | Fulfills World Language with a grade of C or better.**

**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 or demonstrated proficiency of Novice Mid.* Expansion of grammatical knowledge and practice in oral and written expression. **Fulfills World Language with a grade of C or better.**

**FREN 202. INTERMEDIATE FRENCH II. (3)** *Prerequisite: FREN 201 or demonstrated proficiency of Intermediate Low.* Continuation of oral and written practice, vocabulary building and introduction to the reading of literary or cultural texts. **Fulfills World Language with a grade of C or better.**

**FREN 210. INTERMEDIATE FRENCH CONVERSATION ABROAD. (1-3)** *Prerequisite: FREN 102 or demonstrated proficiency of Novice High.* 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. **Fulfills World Language with a grade of C or better.**

**FREN 211. FRENCH CULTURE ABROAD. (1-3)** *Prerequisite: FREN 102 or demonstrated proficiency of Novice High.* 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. **Fulfills World Language with a grade of C or better.**

**FREN 306. EXPERIENCING FRENCH ABROAD. (1-6)** *Prerequisites: FREN 202 or demonstrated proficiency of Intermediate Mid. 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. **Fulfills World Language with a grade of C or better.**

**FREN 314. INTRODUCTION TO FRENCH LITERATURE. (3)** *Prerequisite: FREN 202, or demonstrated proficiency of Intermediate Mid.* 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. **Fulfills World Language with a grade of C or better.**

**FREN 320. FRENCH GRAMMAR AND COMPOSITION. (3)** *Prerequisite: FREN 202 or demonstrated proficiency of Intermediate Mid.* A comprehensive study of French grammar based on classroom explanation and drill and written translation of texts especially prepared to illustrate grammar under discussion. **Fulfills World Language with a grade of C or better.**

**FREN 321. FRENCH CONVERSATION. (3)** *Prerequisite: FREN 202 or demonstrated proficiency of Intermediate Mid.* Exercises in pronunciation, comprehension and composition. Thorough review of language usage. Ample opportunity for conversation. Entirely in French. **Fulfills World Language with a grade of C or better.**

**FREN 322. TRANSLATION. (3)** *Prerequisite: FREN 202 or demonstrated proficiency of Intermediate Mid.* 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. **Fulfills World Language with a grade of C or better.**

**FREN 323. FRENCH CIVILIZATION AND CULTURE. (3)** *Prerequisite: FREN 202, or demonstrated proficiency of Intermediate Mid.* Readings, discussion, lectures, films, oral and written reports on different aspects of France and its people and culture. **Fulfills World Language with a grade of C or better.**

**FREN 325. SURVEY OF FRENCH LITERATURE I. (3)** *Prerequisite: FREN 202 or demonstrated proficiency of Intermediate Mid.* 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. **Fulfills World Language with a grade of C or better.**

**FREN 326. SURVEY OF FRENCH LITERATURE II. (3)** *Prerequisite: FREN 202 or demonstrated proficiency of Intermediate Mid.* 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 the 19th and 20th centuries. **Fulfills World Language with a grade of C or better.**

**FREN 328. FRENCH DICTION AND PRONUNCIATION. (3)** *Prerequisite: FREN 202 or demonstrated proficiency of Intermediate Mid.* Mastery of fluent French diction and pronunciation through intensive practice with sounds, stress, rhythm, linking, phrasing, and intonation. **Fulfills World Language with a grade of C or better.**

**FREN 331. BUSINESS FRENCH. (3)** *Prerequisite: FREN 202 or demonstrated proficiency of Intermediate Mid.* 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. **Fulfills World Language with a grade of C or better.**

**FREN 389. INTERNSHIP IN FRENCH. (1-3)** *Prerequisites: FREN 202 or demonstrated proficiency of Intermediate Mid.* 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. **Fulfills World Language with a grade of C or better.**

**FREN 420. ADVANCED FRENCH COMPOSITION AND STYLISTICS. (3)** *Prerequisite: FREN 202 or demonstrated proficiency of Intermediate Mid.* 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. **Fulfills World Language with a grade of C or better.**

**FREN 421. ADVANCED FRENCH CONVERSATION. (3)** *Prerequisite: FREN 202 or demonstrated proficiency of Intermediate Mid.* Free classroom discussion on assigned topics and reports on newspaper and magazine articles of current interest. Special attention will be paid to idiomatic expressions. **Fulfills World Language with a grade of C or better.**

**FREN 426. FRENCH LITERATURE OF THE TWENTIETH CENTURY. (3)** *Prerequisite: FREN 314 or FREN 325 or FREN 326.* A study of the works of major French writers of the 20th century. **Fulfills World Language with a grade of C or better.**

**FREN 427. FRANCOPHONE CULTURE. (3)** *Prerequisite: FREN 314 or higher or demonstrated proficiency of Intermediate Mid.* Course will cover all francophone countries (including France) and deal with various aspects of their culture: oral literature. **Fulfills World Language with a grade of C or better.**

**FREN 445. FRENCH CANADIAN LITERATURE. (3)** *Prerequisites: FREN 314 or FREN 321 or FREN 325 or FREN 326 or demonstrated proficiency of Intermediate Mid.* A survey of the Québécois novel, theatre and poetry through a selection of 19th and 20th century writers. **Fulfills World Language with a grade of C or better.**

**FREN 450. TOPICS IN FRANCOPHONE CINEMA. (3)** *Prerequisites: FREN 314 or higher or demonstrated proficiency of Intermediate Mid.* 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. **Fulfills World Language with a grade of C or better.**

**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. **Fulfills World Language with a grade of C or better.**

## GEOG—GEOGRAPHY

### DEPARTMENT OF GEOGRAPHY AND GEOLOGY (GEOG)

#### PHYSICAL AND ENVIRONMENTAL GEOGRAPHY

**GEOG 103. OUR DYNAMIC PLANET. (3)** Introduction to the spatial dimension of Earth's dynamic systems and how they affect people. These include the atmosphere, hydrosphere, and lithosphere. Equivalent to GEOL 103. **Colonnade E-NS | NS**

**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 210. ENVIRONMENT AND ECOLOGICAL POLICY. (3)** A survey of the geography, history, and current conditions of environmental policy and regulation development, particularly in the United States, with an emphasis on humans as an integral component of the natural environment.

**GEOG 225. VISUALIZING GEOGRAPHY: UNDERSTANDING OUR DIVERSE WORLD. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses or junior status.* Visualizing Geography uses photographs, maps, and illustrations to explain the diversity of human societies, political systems, resources, and population movement across space and time, from local communities to our increasingly interconnected world. **Colonnade K-SY**

## COURSE DESCRIPTIONS

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**GEOG 226. OUR DANGEROUS PLANET. (3)** Prerequisite: *21 hours of Foundations and Explorations Courses, or junior status.* Introduction to how normal Earth processes concentrate their energies to create devastating impacts to humans and the built environment, with emphasis on survival techniques. **Colonnade K-SY**

**GEOG 227. OUR VULNERABLE PLANET. (3)** Prerequisite: *21 hours of Foundations and Explorations Courses, or junior status.* Explore how anthropogenic processes such as climate change, pollution, urban sprawl, deforestation, and desertification impact the people on Earth and its ecosystems. Does not count towards a major or minor in Geography if GEOG 280 is taken as part of the degree requirements. **Colonnade K-SY**

**GEOG 280. ENVIRONMENTAL SCIENCE AND SUSTAINABILITY. (4)** A general understanding of how the environment functions, the complexity of human-environmental interactions, and the application of geoscience in solving environmental problems. Lab component provides practical experiences associated with the theories outlined in the course content. **Course Fee | Colonnade E-NS (SL) | NS | SL**

**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 310. GLOBAL HYDROLOGY. (3)** Prerequisite: *GEOL 111 or GEOG/GEOL 103.* An introduction to descriptive and quantitative hydrology. The hydrologic cycle precipitation, evaporation, and transpiration are covered under descriptive hydrology. Hydrographs, runoff relations, groundwater, and storage routing are covered under quantitative hydrology. Equivalent to GEOL 310.

**GEOG 328. ELEMENTS OF BIOGEOGRAPHY. (3)** An examination of the spatial interaction and distribution of global biomes. This course examines, through examples at a variety of spatial and ecological scales, the development of human-induced and naturally-occurring biogeographical changes.

**GEOG 344. ENVIRONMENTAL ETHICS. (3)** Prerequisite: *GEOG 280.* Examination of how environmental ethics and philosophy determine the use and alteration of the natural environment by humans. Analysis of human responsibility towards protecting the environment, environmental decision-making, sustainable development, and respect for indigenous cultures.

**GEOG 380. GLOBAL SUSTAINABILITY. (3)** Prerequisite: *GEOG 280 or GEOG / GEOL 103 or instructor's permission; For Colonnade, 21 hours of Foundations and Explorations Courses or junior status.* An introduction to the major themes and scientific principles of sustainability, with an emphasis on developing critical thinking skills. **Colonnade K-LG**

**GEOG 385. SOCIETY, RESOURCES, AND CLIMATE. (3)** Prerequisite: *GEOG 110 and 280 and 21 hours of Foundations and Explorations Courses or junior status.* Discussion of global climate change from a societal and resource perspective; particularly how humans affect global climate change through population size, natural resource use, policy implementation, personal behavior, and societal norms, and vice versa. **Colonnade K-SC**

**GEOG 386. GEOGRAPHY OF POTENT POTABLES: BREWING, DISTILLING, AND WINE MAKING. (3)** Prerequisite: *21 hours of Foundations and Explorations Courses, or junior status.* Students explore the geographies of alcoholic beverages, including the patterns of production, distribution, and consumption of beer, distilled spirits, and wine, and associated cultural and environmental impacts. Breweries, wineries, and distilleries are important elements of many diverse cultural and economic landscapes and reflect local geographies and global influences. The role of location is explored as it relates to such topics as access to raw materials, terroir, the rise of craft breweries and distilleries, sustainability, and cultural attitudes toward the production and consumption of alcoholic beverages.

**GEOG 420. GEOMORPHOLOGY. (3)** Prerequisite: *GEOL 111 or GEOG / GEOL 103.* 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 427. WATER RESOURCE MANAGEMENT. (3)** Prerequisite: *GEOL / GEOG 310.* Examines the use, management, and conservation of water resources. Discusses environmental, economic, political and social implications of water usage, as well as emerging trends in water availability, pollution, regulation, and technology.

**GEOG 452. APPLIED GEOSCIENCE FIELD EXPERIENCES. (1-6)** Prerequisite: *21 hours of Foundations and Explorations Courses, or junior status.* Applied geoscience experiences in a variety of field-based settings, including, but not limited to, Study Abroad and Study Away programs, field camps, and extended fieldtrips to national or international settings. Repeatable for a maximum of 12 hours. **Colonnade K-LG**

**GEOG 455. GLOBAL CLIMATE CHANGE. (3)** Prerequisite: *GEOG 280 or instructor's permission.* Explores the science behind global climate change, including how models, observations, and proxies are used to understand and predict past and future climate, international perspectives on global climate change, and mitigation strategies put forth by the Intergovernmental Panel on Climate Change.

**GEOG 459. ADVANCED HYDROLOGY. (3)** Prerequisites: *MATH 136 with a grade of "C" or better, and GEOG/GEOL 310 or GEOG/GEOL 420.* Builds upon the principles of descriptive and quantitative hydrology using a geologic- and calculus-based approach to understanding the Earth's hydrologic cycle. Includes components of atmospheric, surface, and ground waters and the principles of fluid dynamics that govern the physical and chemical processes that affect water and its behavior in the natural world.

**GEOG 461. KARST ENVIRONMENTS. (3)** Prerequisites: *GEOG / GEOL 310 or, 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 471. TECHNOLOGICAL APPLICATIONS IN NATURAL RESOURCE MANAGEMENT. (3)** Prerequisites: *GEOG 280 and GISC 316, or instructor's permission.* Examines the application of technology to address current resource management challenges and ensure the efficient utilization of natural resources. Discussions may address, but are not limited to, timber, fisheries, oil and gas, and wildlife management.

**GEOG 474. ENVIRONMENTAL PLANNING APPLICATIONS. (3)** Prerequisites: *GEOG 280 and GEOG 210, or instructor's permission.* Integrative topics in environmental science, sustainability, and planning. Emphasis on sustainable community planning and development in urban and rural settings. Students study current models and policies from around the globe.

**GEOG 486 SEMINAR IN ENVIRONMENTAL SCIENCE AND SUSTAINABILITY. (1-3)** Current issues related to sustainability and / or environmental science discussed via invited lecturers, community engagements, and/or department and university-wide seminars. Students are expected to participate in assigned seminar activities throughout the duration of the course. Repeatable for up to 6 hours.

**GEOG 487. ENVIRONMENTAL MANAGEMENT AND LAW. (3)** Prerequisites: *Senior level standing.* Examination of major legislative, administrative, and judicial management approaches to addressing current environmental conditions related, but not limited to, natural resource consumption and air, water, and hazardous pollutants in the United States and abroad.

**GEOG 489. ALTERNATIVES IN SUSTAINABILITY. (3)** Prerequisite: *GEOG 280.* Addresses aspects of sustainability theory and practice, including problem-solving and decision-making techniques and critical analyses of prominent sustainability plans. Content focuses on a single topic within the sustainability discipline for the entirety of the course. Repeatable up to 6 hours with topic change.

### **CULTURAL AND ANALYTICAL GEOGRAPHY**

**GEOG 110. 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. **Colonnade E-SB | SB**

**GEOG 200. LATIN AMERICAN SOCIETY: PAST AND PRESENT. (3)** Prerequisite: *21 hours of Foundations and Explorations Courses, or junior status.* This course is a broad, interdisciplinary introduction to the study of Latin America, emphasizing regions, peoples, and cultures. Equivalent to HIST 200, PS 200, and SPAN 200. **Colonnade K-SC**

**GEOG 275. SUPERVISED INDEPENDENT RESEARCH IN GEOGRAPHY. (3)** Prerequisites: *METR 121 or appropriate preparation course, and permission of instructor. Restricted to freshmen, sophomores, and Gatton Academy students.* A study of a selected problem under the supervision of a faculty member.

**GEOG 300. WRITING IN THE GEOSCIENCES. (3)** Prerequisites: *GEOG 110 and ENG 100 and one of the following: GEOG 103, GEOL 103, GEOL 111, or METR 121.* Students conduct investigations into writing, reading, and research conventions in the geosciences and receive advanced instruction in planning, drafting, arranging, revising, and editing geoscience-specific essays and research projects. **Colonnade F-W2 | WC**

**GEOG 330. INTRODUCTION TO CULTURAL GEOGRAPHY. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. An overview of core concepts in cultural geography based on five major themes: region, mobility, globalization, nature-culture, and cultural landscape. Field trips required.

**Colonnade K-SC**

**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.

**GEOG 352. 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 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.

**GEOG 364. GEOGRAPHY OF EUROPE. (3)** *Prerequisite:* GEOG 110. 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 378. FOOD, CULTURE, AND ENVIRONMENT. (3)** *Prerequisite:* GEOG 110 and 21 hours of Foundations and Explorations Courses, or junior status. 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. **Course Fee | Colonnade K-LG**

**GEOG 391. SPATIAL DATA ANALYSIS AND INTERPRETATION. (4)** *Prerequisites:* MATH 183 or MATH 136, and GIS 316; or special permission by instructor. Statistical concepts and methods emphasizing their applications in a spatial context. Statistical description and hypothesis testing. Visualization and analysis of spatial patterns and relationships. **Course Fee**

**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. (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. Equivalent to FLK 434.

**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 465. GEOGRAPHY OF EAST ASIA. (3)** *Prerequisite:* GEOG 110. Analysis of selected contemporary geographic issues in East Asia. Emphasis is on a synthesis of various geographic factors and phenomena, including physical, cultural, political, social, and economic systems.

**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.

**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 480. URBAN GEOGRAPHY. (3)** Geographic principles related to basic elements of distribution, structure, functional relationships, and regional setting of urban centers are discussed.

**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 492. ADVANCED SPATIAL ANALYSIS. (3)** *Prerequisites:* GEOG 300 and 391 with a grade of "C" or better; or permission of instructor. Applying advanced spatial analytical techniques in GIS environment. Quantitative analysis in Geosciences is emphasized. **Course Fee**

**GEOG 495. RESEARCH PRACTICUM OR INTERNSHIP. (1-9)** *Prerequisite:* Permission of instructor. Supervised research or internship with faculty, government, community, or private concerns. May be repeated for a maximum of 12 credit hours in the major, with a maximum of 6 credit hours permitted in minor programs.

**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)

#### GEOL—GEOLOGY DEPARTMENT OF GEOGRAPHY AND GEOLOGY (GEOL)

**GEOL 103. OUR DYNAMIC PLANET. (3)** Introduction to the spatial dimension of Earth's dynamic systems and how they affect people. These include the atmosphere, hydrosphere, and lithosphere. Equivalent to GEOG 103. **Colonnade E-NS | NS**

**GEOL 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.

**GEOL 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.

**GEOL 111. THE EARTH. (3)** 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. **Colonnade E-NS | NS**

**GEOL 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. **Colonnade E-NS | NS**

**GEOL 113. THE EARTH LABORATORY. (1)** *Prerequisites/corequisites:* GEOL 111 or GEOG / GEOL 103. 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 | Colonnade E-SL | SL**

**GEOL 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 | Colonnade E-SL | SL**

**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**

## COURSE DESCRIPTIONS

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**GEOL 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** *Prerequisite:* *Ogden Research Scholar, or 3.2 grade point average at the end of freshman year, or Ogden College 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, 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 toward any major or minor.) Equivalent to BIOL 295, CHEM 295, CS 295, ENGR 295, MATH 295, and PHYS 295.

**GEOL 305. EARTH SYSTEM SCIENCE FOR TEACHERS. (3)** *Prerequisites:* *GEOL 111 and 113, or GEOL 112 and GEOL 114.* Collaborative, problem-based learning (PBL) experience, using real-world examples to enhance student understanding of earth system science, with a focus on relevance in science teaching grades K-12. Includes PFL-based lesson plan development. Applicable towards a major in geology on for those students seeking teacher certification.

**GEOL 310. GLOBAL HYDROLOGY. (3)** *Prerequisite:* *GEOL 111 or GEOG / GEOL 103.* An introduction to descriptive and quantitative hydrology. The hydrologic cycle precipitation, evaporation, and transpiration are covered under descriptive hydrology. Hydrographs, runoff relations, groundwater, and storage routing are covered under quantitative hydrology. Equivalent to GEOG 310.

**GEOL 311. GENERAL OCEANOGRAPHY. (3)** *Prerequisite:* *GEOL 111 and GEOL 113, or permission of 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. **Course Fee**

**GEOL 315. ENERGY, CLIMATE, AND CARBON. (3)** *Prerequisite:* *GEOL 111 or GEOL 112 or GEOL 103 or GEOG 103; 21 hours of Foundations and Explorations Courses, or junior status.* Energy, Climate, and Carbon investigates our current reliance upon carbon-based sources of energy, the effect of fossil-fuel emissions and global climate change. The course is particularly focused on carbon-capture technologies, geological carbon sequestration and renewable energy resources. **Colonnade K-SY**

**GEOL 325. INTRODUCTION TO MINERALS AND CRYSTALLINE ROCKS. (3)** *Prerequisite:* *GEOG / GEOL 103 or GEOL 111; GEOL 113.* The sight identification of minerals and crystalline rocks is stressed. The description, origin and classification, economic uses, and occurrences of the major mineral and crystalline rock groups are discussed. Appropriate rock and mineral 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. **Course Fee**

**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. **Course Fee**

**GEOL 360. SEDIMENTOLOGY AND STRATIGRAPHY. (4)** *Prerequisite:* *GEOL 112 and GEOL 114.* 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 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:* *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 122 and 123 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. **Course Fee**

**GEOL 408. STRUCTURAL GEOLOGY. (4)** *Prerequisites:* *GEOL 111 and 113, and a prerequisite or corequisite of MATH 117 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 415. ENVIRONMENTAL GEOLOGY. (3)** *Prerequisite:* *GEOL 111-113 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. (3)** *Prerequisite:* *GEOL 111 or GEOG / GEOL 103.* 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 325 or 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. DIFFRACTION AND SPECTROSCOPY. (4)** *Prerequisite:* *GEOL 325 or GEOL 330 or CHEM 222 or PHYS 266.* Theory and experimental practices of modern analytical techniques for the analysis of crystal structures. Focuses on the study of crystallography, crystal chemistry, and their physical and chemical properties. 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 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 470. TECTONICS. (3)** *Prerequisite:* *GEOL 308.* Deformational structure and style of various crustal regions. Regional tectonics of North American is emphasized. **Course Fee**

**GEOL 475. SPECIAL TOPICS IN GEOLOGY. (1-3)** *Prerequisite:* *Permission of instructor.* A lecture-discussion or supervised research course in which advanced or special topics in geology are considered in detail. Students may repeat the course when the topic changes for a maximum total of 12 credit hours. Special topics courses may not replace required courses in the geology major / minor but may be applied as elective credit.

**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)** 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 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 academia will be included. (Grading: Pass / Fail)

**GERM – GERMAN**  
**DEPARTMENT OF MODERN LANGUAGES (GERM)**

**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. May be repeated for a total of three credits.

**GERM 101. ELEMENTARY GERMAN I. (3)** Introduction to German through exploration of the students' personal world: expressing preferences, abilities, needs, and obligations; asking for information; describing things in their world; and reporting their typical activities.

**GERM 102. ELEMENTARY GERMAN II. (3)** *Prerequisite:* GERM 101 or demonstrated proficiency of Novice Mid. Continued development of communication on topics related to everyday life in cultural context. Target proficiency: at least Novice High. **Course Fee | Fulfills World Language with a grade of C or better.**

**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. INTERMEDIATE GERMAN I. (3)** *Prerequisite:* GERM 102 or demonstrated proficiency of Novice High. Strengthen communicative abilities on a broader range of topics. Emphasis on social interaction and practical uses of the language. Target proficiency: Intermediate Low. **Fulfills World Language with a grade of C or better.**

**GERM 202. INTERMEDIATE GERMAN II. (3)** *Prerequisite:* GERM 201 or demonstrated proficiency of Intermediate Mid. Students to create with language, maintain communication, explore topics in greater detail. Material drawn from literature, popular culture and the internet. Target proficiency: Intermediate Mid. **Fulfills World Language with a grade of C or better.**

**GERM 210. INTERMEDIATE GERMAN CONVERSATION ABROAD. (1-3)** *Prerequisite:* GERM 102 or demonstrated proficiency of Novice High. 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. **Fulfills World Language with a grade of C or better.**

**GERM 211. INTERMEDIATE GERMAN CULTURE ABROAD. (1-3)** *Prerequisite:* GERM 102 or demonstrated proficiency of Novice High. 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. **Fulfills World Language with a grade of C or better.**

**GERM 306. EXPERIENCING GERMAN ABROAD. (1-6)** *Prerequisites:* GERM 202 or demonstrated proficiency of Intermediate High. *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. **Fulfills World Language with a grade of C or better.**

**GERM 314. INTRODUCTION TO GERMAN LITERATURE. (3)** *Prerequisite:* GERM 202 or demonstrated proficiency of Intermediate Mid. Emphasis on major periods, literary types and critical approaches through the study of selected representative works and authors. **Fulfills World Language with a grade of C or better.**

**GERM 330. GERMAN COMPOSITION AND CONVERSATION. (3)** *Prerequisite:* GERM 202 or demonstrated proficiency of Intermediate Mid. 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. **Fulfills World Language with a grade of C or better.**

**GERM 331. BUSINESS GERMAN. (3)** *Prerequisite:* GERM 202 or demonstrated proficiency of Intermediate Mid. Introduction to business communication in German-speaking countries: linguistic structures and vocabulary, forms of business communication, reading and discussion of business texts, social customs. **Fulfills World Language with a grade of C or better.**

**GERM 332. ADVANCED GERMAN TRANSLATION. (3)** *Prerequisite:* GERM 202 or demonstrated proficiency of Intermediate Mid. 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. **Fulfills World Language with a grade of C or better.**

**GERM 333. GERMANIC CIVILIZATION AND CULTURE. (3)** *Prerequisite:* GERM 202 or demonstrated proficiency of Intermediate Mid. 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. **Fulfills World Language with a grade of C or better.**

**GERM 335. CONTEMPORARY CULTURE AND CIVILIZATION. (3)** *Prerequisites:* GERM 202 or demonstrated proficiency of Intermediate Mid. 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. **Fulfills World Language with a grade of C or better.**

**GERM 389. INTERNSHIP IN GERMAN. (1-3)** *Prerequisites:* GERM 202 or demonstrated proficiency of Intermediate Mid. 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. **Fulfills World Language with a grade of C or better.**

**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. **Fulfills World Language with a grade of C or better.**

**GERM 435. GERMAN LITERATURE OF THE 19<sup>TH</sup> AND 20<sup>TH</sup> CENTURIES. (3)** *Prerequisite:* GERM 314 or demonstrated proficiency of Intermediate Mid. A study of major German, Austrian, and Swiss writers of the 19th and 20th centuries with emphasis on prose and drama. **Fulfills World Language with a grade of C or better.**

**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. **Fulfills World Language with a grade of C or better.**

**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. **Fulfills World Language with a grade of C or better.**

**GERM 455. TOPICS IN GERMANIC LITERARY AND CULTURAL STUDIES. (3)** *Prerequisite:* GERM 314 or demonstrated proficiency of Intermediate Mid. Examines different topics of interest in German literary and cultural studies. May be repeated once for credit. **Fulfills World Language with a grade of C or better.**

**GERM 499. ADVANCED STUDIES IN GERMAN. (1-4)** *Prerequisites:* GERM 314 or demonstrated proficiency of Intermediate Mid. 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. **Fulfills World Language with a grade of C or better.**

**GERO - GERONTOLOGY**  
**DEPARTMENT OF APPLIED HUMAN SCIENCES**

**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. **Colonnade E-SB | SB**

**GERO 461. PERSON-CENTERED DEMENTIA MANAGEMENT. (3)** A survey of dementia using a person-centered approach. Exploration of the diverse perspectives of persons diagnosed, family members, and both informal and formal caregivers.

**GERO 481. GLOBAL AGING. (3)** Provides an international comparative examination of individual and societal aspects of aging and explores the problems and solutions encountered in different sociocultural contexts for dealing with challenges and opportunities of aging. The phenomenon of global aging is explored through active engagement with international organizations.

## COURSE DESCRIPTIONS

**GERO 485. SEMINAR IN GERONTOLOGY. (3)** *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 personal, professional or higher education goals.

**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 credit hours can be counted toward a 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 their own transportation to assigned sites. May be repeated for credit, but only a total of 3 credit hours can be counted toward a Gerontology minor.

### GISC—GEOGRAPHIC INFORMATION SYSTEMS DEPARTMENT OF GEOGRAPHY AND GEOLOGY

**GISC 216. GEOTECHNOLOGIES IN A GLOBAL COMMUNITY. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* 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 | Colonnade K-LG**

**GISC 316. FUNDAMENTALS OF GEOGRAPHIC INFORMATION SYSTEMS. (4)** *Prerequisites: GEOG 103 or GEOL 103 or GEOL 111 or METR 121; 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**

**GISC 317. GEOGRAPHIC INFORMATION SYSTEMS. (4)** *Prerequisites: GISC 316 with a grade of "C" or better, or permission of instructor.* The principles, concepts, and applications of GIS. Topics include raster and vector data modules, GIS data sources, data acquisition, storage, management, structured query language, relational databases, GIS analysis and display. **Course Fee**

**GISC 414. REMOTE SENSING FUNDAMENTALS. (4)** *Prerequisite: GISC 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**

**GISC 417. GIS ANALYSIS AND MODELING. (3)** *Prerequisite: GISC 317 with a grade of "C" or better or instructor's permission.* Develops expertise with a broad range of spatial analysis and modeling functions using GIS. A problem-oriented approach. **Course Fee**

**GISC 418. INTERNET GEOGRAPHIC INFORMATION SYSTEMS. (3)** *Prerequisites: CS 170, and GISC 417 with a grade of C or better; or permission of instructor.* Understanding and utilizing different techniques for creating, analyzing and disseminating GIS data and services via the internet. **Course Fee**

**GISC 419. GIS PROGRAMMING. (3)** *Prerequisites: GISC 317, or permission by instructor.* Learning the process of expanding GIS functionalities. Customizing a GIS system via computer programming. **Course Fee**

**GISC 423. GEOPROCESSING AND GIS APPLICATIONS. (3)** *Prerequisite: GISC 317 with a grade of "C" or higher; or permission of instructor.* Explores selected issues related to urban applications of GIS. Develop analytical skills and knowledge in transportation, urban management, locational analysis, and business geography. **Course Fee**

**GISC 443. GEOGRAPHIC INFORMATION SYSTEMS DATABASES. (3)** *Prerequisites: CS 170, and GISC 417 with a grade of "C" or higher; or permission of instructor.* The concepts and principles of GIS database planning, design, implementation, and administration. Focuses on the development of state-of-the-art GIS databases. **Course Fee**

**GISC 477. SPECIAL TOPICS IN GEOGRAPHIC INFORMATION SYSTEMS. (3)** *Prerequisites: GISC 417 and GISC 443 with a grade of "C" or higher; or permission of instructor.* Applications of GIS technologies in selected technical areas such as 3D GIS and Enterprise GIS, or directed research of an elected domain-specific problem. Repeatable once for credit. **Course Fee**

### GWS—GENDER & WOMEN'S STUDIES DEPARTMENT OF DIVERSITY AND COMMUNITY STUDIES

**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. **Colonnade E-SB | SB**

**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 350. FEMINISM, THE ARTS, AND SOCIAL CHANGE. (3)** *Prerequisite: GWS 200 or permission of instructor.* An investigation into the potential of feminist arts and creative action to create community and social change.

**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: GWS 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)** *Prerequisites: Completion of Colonnade Explorations Natural and Physical Sciences requirements 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 Gender and Women's Studies.

**GWS 491. PRACTICUM IN GENDER AND WOMEN'S STUDIES. (3)** *Prerequisite: Junior standing, GWS 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 Gender and 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 247. 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. Equivalent to HED 247C.

**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)** *Prerequisite: 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:* Sophomore standing. 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:* 21 hours of Foundations and Explorations Courses, or junior status. 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. **Colonnade K-LG**

**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. DATA MANAGEMENT APPLICATIONS IN HEALTHCARE. (1)** *Prerequisite:* MATH 183 or SOCL 300 or PH 383 or permission of instructor. This course covers data types, data use, and data management approaches including statistical applications that are currently used in the healthcare industry. Data management and analysis products including MS Excel, SPSS and other data management/statistical applications relevant to the healthcare environment would be used to deliver course content. 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 or ECON 203. 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, HCA 344, HCA 345 or HCA 346 or HCA 355, ACCT 201 or HIM 252, HCA 440 or any 300 level or above economics course. 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 coursework for health care administration majors and prepares them for the internship experience. Individual primary projects are required.

**HCA 449. INTERNSHIP IN HEALTH CARE ADMINISTRATION. (1-6)** *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 459. GLOBAL HEALTH SERVICE-LEARNING PRACTICUM. (3)** *Prerequisite:* HCA 347 or permission of instructor. Designed to provide students in health professions with a global service-learning experience. Integrates student knowledge and skills with practical applications in global health context, based on the student career objectives and the health needs of the served communities. Repeatable once for a total of six credit hours.

**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 PUBLIC HEALTH**

**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. Equivalent to HCA 247.

**HIM- HEALTH INFORMATION MANAGEMENT  
DEPARTMENT OF PUBLIC 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. **Course Fee**

**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)** *Prerequisite:* 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 or CIS 141. Exploration of computer systems for health information management, with emphasis on the electronic health record. Various HIM software applications will be utilized. **Course Fee**

**HIM 250. INTERNATIONAL CLASSIFICATION OF DISEASES (ICD) CODING.\*\* (4)** *Prerequisites:* HIM 100, AH 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.

## COURSE DESCRIPTIONS

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### 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:* AH 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 associate degree 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. Students responsible for own expenses.

**HIM 330. ELECTRONIC HEALTH RECORD SYSTEMS. (3)** *Prerequisites:* HIM 100, HCA 340, CD 280, NUR 105, SWRK 205 or other introductory health profession course approved by instructor. Utilization, application, analysis, and evaluation of an electronic health record system for data collection, communication, storage, reporting and exchange of health information.

**HIM 350. HEALTH INFORMATICS RESEARCH. (3)** *Prerequisites:* HIM 230, PH 383, HCA 340. Applies principles and methods of scientific research to selected topics in health informatics and relevant healthcare issues.

**HIM 351. INTERNATIONAL CLASSIFICATION OF DISEASES (ICD-10) CODING. (1)** *Prerequisites:* Open only to matriculated baccalaureate degree Health Information Management (HIM) students. Course provides students with opportunities to learn and apply guidelines of ICD-10-CM and ICD-10-PCS coding.

**HIM 421. HEALTH INFORMATION LEADERSHIP AND MANAGEMENT. (3)** *Prerequisites:* Junior standing in HIM BS program. Application, evaluation, and creation of operational, managerial, and strategic planning for health information including project management, budgeting, human resources, professional development, and other administrative functions.

**HIM 422. CLINICAL EVALUATION AND OUTCOMES. (3)** *Prerequisites:* PH 383, HIM 221 or equivalent or permission of instructor. Advanced course in applying measurements, evaluations, and reports to processes, structures, and outcomes in improving the efficiency and effectiveness of health information management and clinical services.

**HIM 430. HEALTH DATA MANAGEMENT AND ANALYTICS. (3)** *Prerequisites:* HIM 330 and one of the following: HIM 230, HCA 446 and 447, CIT 350, BDAN 330, or INS 272C. Acquisition, analysis, display, interpretation, reporting, transformation, and management of healthcare data to respond to needs, trends, and changes in clinical practice, management, health care quality, regulations, legislation, accrediting bodies and marketplace..

**HIM 450. APPLICATION & ANALYSIS OF HIM THEORY. (3)** *Prerequisite:* Open only to matriculated baccalaureate degree Health Information Management (HIM) students. Advanced study in application and analysis of HIM theory in healthcare settings. Must be taken in semester prior to enrollment in HIM 495 Capstone PPE.

**HIM 495. CAPSTONE PROFESSIONAL PRACTICE EXPERIENCE. (3-6)** *Prerequisites:* Completion of all HIM baccalaureate degree required courses. Professional practice experience in a health-related setting. Students are responsible for their own travel.\*\*Lab component required.

### HIST– HISTORY

#### DEPARTMENT OF HISTORY (HIST)

**HIST 101. WORLD HISTORY 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. **Colonnade F-SB | SB**

**HIST 102. WORLD HISTORY 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. **Colonnade F-SB | SB**

**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.

**HIST 119. WESTERN CIVILIZATION TO 1648. (3)** A survey of the political, social, cultural, and economic phases of western civilization to 1648.

**HIST 120. WESTERN CIVILIZATION SINCE 1648. (3)** A survey of the political, social, cultural, and economic phases of western civilization since 1648.

**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 200. LATIN AMERICAN SOCIETY: PAST AND PRESENT. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. A broad interdisciplinary introduction to the study of Latin America, emphasizing its regions, peoples, and cultures. Equivalent to GEOG 200, PS 200, and SPAN 200. **Colonnade K-SC**

**HIST 240. 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. THE UNITED STATES SINCE 1865. (3)** A survey of the political, social, cultural, and economic phases of American life since the Civil War.

**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 300. CONTEMPORARY CHINESE SOCIETY AND CULTURE. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. Examines contemporary Chinese society and culture from 1949 to present, focusing on both macro-level development and the daily experiences of ordinary citizens. **Colonnade K-LG**

**HIST 305. ANCIENT GREECE. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. A survey emphasizing the political, cultural, social, and economic aspects of Greek civilization. **Colonnade K-SY**

**HIST 306. ANCIENT ROME. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. A survey emphasizing the political, cultural, social, and economic aspects of Roman civilization. **Colonnade K-SY**

**HIST 307. THE MIDDLE AGES. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. A study of political, cultural, social, and economic institutions from the fifth century to the fourteenth century. **Colonnade K-SY**

**HIST 308. CONFLICT, CULTURE AND COMMERCE IN THE MEDIEVAL MEDITERRANEAN. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. Explores the developing relationship between religion, culture and power in medieval kingdoms with substantial Christian, Jewish and Muslim inhabitants. **Colonnade K-SY**

**HIST 310. COMPARATIVE SLAVERY. (3)** *Prerequisite:* HIST 101 or 102 and 21 hours of Foundations and Explorations Courses, or junior status. Examines slavery among people of African descent emphasizing the origins, politics, economics, and legacies of African slavery in the Americas, Asia, the Caribbean, and Africa. **Colonnade K-SY**

**HIST 316. THE AMERICAN CIVIL WAR IN FILM. (3)** *Prerequisite:* HIST 101 or 102 or HIST 240. Examination of how the American Civil War has been portrayed in film, including the social, political, and military aspects of the war.

**HIST 317. RENAISSANCE EUROPE. (3)** *Prerequisites:* HIST 101 or 102 or permission of instructor and 21 hours of Foundations and Explorations Courses, or junior status. 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. **Colonnade K-SC**

**HIST 318. AGE OF THE REFORMATION. (3)** *Prerequisites:* HIST 101 or 102 or permission of 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.

**HIST 320. AMERICAN STUDIES I. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. 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. Equivalent to PS 320. **Colonnade K-SC**

**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 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 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 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. **Colonnade K-SC**

**HIST 325. BLACKS IN THE CIVIL WAR AND RECONSTRUCTION. (3)** *Prerequisite: HIST 101 or 102.* Examines black experiences during the Civil War and Reconstruction emphasizing anti-slavery, black soldiers, emancipation, postwar labor, political challenges, and the experiences of women. **Colonnade K-SC**

**HIST 330. HISTORY OF AFRICA BEFORE 1500. (3)** *Prerequisite: HIST 101 or HIST 102.* Examines African history chronologically from the origins of humanity to geographical themes within a regional context.

**HIST 331. HISTORY OF AFRICA SINCE 1500. (3)** *Prerequisite: HIST 101 or HIST 102.* Examines African history chronologically from 1500 to the present with emphasis on major political, economic, social, and geographical themes within a regional context.

**HIST 333. HISTORY OF GENOCIDE. (3)** *Prerequisite: HIST 101 or HIST 102.* This seminar analyzes and compares the origins, developments, and forms of mass violence and genocide, focusing especially on the 20<sup>th</sup> century.

**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 101 or 102 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 POPULAR CULTURE SINCE 1500. (3)** *Prerequisites: HIST 101 or 102 and ENG 100, or permission of instructor and 21 hours of Foundations and Explorations Courses, or junior status.* Examines popular culture from 1500 to the present, focusing especially on how popular culture evolved in reaction to social, economic, political, and technological change from local, national, trans-Atlantic and global perspectives. Students engage the questions, debates, methods, and approaches of popular culture history. **Colonnade K-SC**

**HIST 341. A CULTURAL HISTORY OF ALCOHOL. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses; or junior status.* 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. **Colonnade K-SC**

**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.

**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.

**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.

**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.

**HIST 364. COLONIAL LATIN AMERICA, 1400-1825. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses or junior status.* 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. **Colonnade K-SC**

**HIST 365. MODERN LATIN AMERICA, 1800-PRESENT. (3)** *Prerequisite: 21 hours of Foundations and Explorations courses, or junior status.* A study of the political, social, economic, and cultural development of Latin American republics from their independence in the early 19<sup>th</sup> century to the present. **Colonnade K-LG**

**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.

**HIST 379. GANDHI: THE CREATION OF A GLOBAL LEGACY. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* An exploration of the full range of Gandhi's political, spiritual, and moral concerns, beginning with his early years in South Africa and tracing Gandhi's transformation from a local activist to a leader with global influence. **Colonnade K-LG**

**HIST 380. HUMAN RIGHTS IN HISTORY. (3)** *Prerequisites: HIST 101 or 102 and 21 hours of Foundations and Explorations Courses, or junior status.* This course examines: the historical origins of human rights, key disputes surrounding the content and legitimacy of human rights, and the enforcement of international humanitarian law in theory and practice. **Colonnade K-LG**

**HIST 390. BLACKS IN THE AMERICAN SOUTH. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Seminar exploring the history and culture of blacks in the American South. Topics will include slavery, resistance, labor, literature, religion, inequality, leadership, and the Civil Rights Movement. **Colonnade K-SC**

**HIST 391. HISTORY OF SPORT. (3)** *Prerequisite: HIST 101 or 102 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 101 or 102 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 407. THE CRUSADES: WEST MEETS EAST. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* A study of the idea of holy war and political, social, and cultural interaction in the Mediterranean World from 1000 to 1300. **Colonnade K-LG**

**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.

**HIST 420. HISTORY OF SEXUALITY. (3)** *Prerequisite: HIST 101 or 102 or permission of instructor.* Survey of how past societies and cultures have interpreted human sexual behavior and identities.

**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.

## COURSE DESCRIPTIONS

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**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 430. THE HISTORY OF THE CIVIL RIGHTS MOVEMENT IN AMERICA.** (3) *Prerequisites: HIST 101 or 102 or permission of instructor and 21 hours of Foundations and Explorations Courses, or junior status.* Survey of the struggle for civil rights and social justice in 20<sup>th</sup> century America. **Colonnade K-LG**

**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 440. COLONIAL NORTH AMERICA TO 1763.** (3) *Prerequisite: HIST 101 or 102 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, 1763-1815.** (3) A study of the origins, progress, and immediate aftereffects of the American Revolution from the Crisis of the 1760s through the War of 1812, including local, regional, and global contexts.

**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 101 or 102 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 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.

**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 463. THE ATLANTIC WORLD.** (3) *Prerequisites: HIST 101 or 102 or permission of instructor and 21 hours of Foundations and Explorations Courses, or junior status.* 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. **Colonnade K-LG**

**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.

**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.

**HIST 481. THE RISE AND FALL OF THE CONFEDERACY.** (3) *Prerequisites: HIST 101 or 102 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.

**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 credit hours 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 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.

**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.

### HMD – HOSPITALITY MANAGEMENT AND DIETETICS DEPARTMENT OF APPLIED HUMAN SCIENCES (HMD)

**HMD 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 are involved. **Course Fee**

**HMD 151. FOOD SCIENCE.** (3) Introduction to the study of the basic principles of food science as they apply to food preparation. Application of principles include preparation and evaluation of food products. **Course Fee**

**HMD 152. FOOD SERVICE SANITATION.** (1) Examines the causes and prevention of foodborne illness. Identifies hazards in food service operations. The course culminates with a nationally recognized food safety and sanitation exam. (Grading: Pass / Fail).

**HMD 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.

**HMD 201. INTRODUCTION TO DIETETICS.** (1) Introduction to dietetics including academic and professional preparation.

**HMD 211. HUMAN NUTRITION. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* 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. **Colonnade K-SY**

**HMD 251. COMMERCIAL FOOD PREPARATION. (3)** *Prerequisite: HMD 151, 152.* Study and application of commercial food preparation processes including selection, storage, presentation of food products, and the effective utilization of resources. **Course Fee**

**HMD 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. Specific applications: spreadsheets, word-processing, reservation systems, accounting systems, and nutritional analysis.

**HMD 271. TOURISM PLANNING AND DEVELOPMENT. (3)** Evaluation of international and domestic travel, tourism, economics, and cultural impact. Examination of tourism management, meeting planning, travel systems, food and lodging systems, and tourist attractions. Students are responsible for any field trip expenses and transportation. .

**HMD 275. RESTAURANT & RETAIL MANAGEMENT. (3)** *Prerequisite: HMD 151.* Identify and evaluate elements involved in successful concept creation and operation of a restaurant and its affiliated retail. Field trips at student's expense.

**HMD 276. LODGING OPERATIONS. (3)** *Prerequisites: HMD 171.* Study of hotel and lodging operations, including analyses of the functions of revenue-generating and support departments. Students are responsible for any field trip expenses and transportation.

**HMD 313. PRACTICUM IN HOSPITALITY MANAGEMENT. (3-6)** *Prerequisites: Sophomore standing.* Supervised work experience in event management and tourism. Practicum sites must be approved by the instructor. Students are required to find their own practicum site and provide their own transportation to the site. Repeatable up to a maximum of six hours.

**HMD 340. NUTRITION ASSESSMENT. (3)** *Corequisite: HMD 361.* Application of dietary, anthropometric and biochemical assessment methods for the determination of nutrition status. Includes utilization of the Nutrition Care Process.

**HMD 351. HUMAN RESOURCE MANAGEMENT IN THE HOSPITALITY INDUSTRY. (3)** *Prerequisite: HMD 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.

**HMD 353. MENU PLANNING AND PURCHASING. (3)** *Prerequisite: HMD 251.* Study of menu development, including planning and purchasing practices. Students are responsible for any field trip expenses and transportation. .

**HMD 354. COST CONTROL IN THE HOSPITALITY INDUSTRY. (3)** *Prerequisites: HMD 252.* Study of the financial aspects of hospitality operations to include budgeting, forecasting, financial analysis, and managerial accounting.

**HMD 360. ADVANCED NUTRITION. (3)** *Prerequisites: HMD 211, BIOL 131, CHEM 107 or CHEM 109.* An in-depth examination of the biochemical and physiological functions of nutrients and their relationships to health and disease. The digestion, absorption, transport, and excretion of nutrients are discussed. Includes the regulation and integration of metabolic pathways.

**HMD 361. LIFE STAGE NUTRITION. (3)** *Prerequisite: HMD 211, BIOL 131, and CHEM 105 or CHEM 109.* Study of nutritional requirements of individuals throughout the life cycle. Students are responsible for any field experience expenses and transportation.

**HMD 362. MEDICAL NUTRITION THERAPY I. (4)** *Prerequisites: HMD 361 and CHEM 304 or CHEM 109. Corequisite: HMD 340.* 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.

**HMD 364. SPORTS NUTRITION. (3)** *Prerequisite: HMD 211.* 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.

**HMD 367. NUTRITION IN AGING. (3)** *Prerequisite: HMD 211 or permission of the instructor.* Explores the nutritional requirements of individuals throughout the aging process. Students are responsible for any field trip expenses and transportation.

**HMD 368. DIETARY AND HERBAL SUPPLEMENTS. (3)** *Prerequisite: HMD 211.* Current topics related to dietary supplements. Regulatory guidelines and issues related to production, marketing, safety, and efficacy are addressed.

**HMD 373. HOSPITALITY AND TOURISM MARKETING. (3)** *Prerequisites: HMD 271.* Examines the scope and implementation of specialized marketing activities across a range of organizations in the hospitality and tourism industry.

**HMD 375. MEETING AND CONVENTION MANAGEMENT. (3)** *Prerequisite: HMD 271 and junior standing.* Examines planning and management of conventions, meetings, trade shows and exhibitions. Students are responsible for any field experience expenses and transportation.

**HMD 378. LEGAL ENVIRONMENT OF HOSPITALITY AND TOURISM. (3)** *Prerequisites: HMD 271 and junior standing.* 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.

**HMD 410. INTERNSHIP IN HOSPITALITY MANAGEMENT. (3-6)** *Prerequisites: Junior standing or permission of the instructor.* Supervised work experience in hospitality management and tourism. Internship sites must be approved by the instructor. Students are required to find their own internship site and provide their own transportation to the site. Repeatable up to a maximum of six hours.

**HMD 452. QUALITY AND SERVICE MANAGEMENT. (3)** *Prerequisites: HMD 251.* In-depth investigation of management theories, leadership, and incorporating quality-service principles. Students are responsible for any field experience expenses and transportation.

**HMD 459. SENIOR SEMINAR IN HOSPITALITY MANAGEMENT AND DIETETICS. (1)** *Prerequisites: HMD major and senior standing.* Course focuses on professional career development. Students are responsible for any field experience expenses and transportation. (Grading: Pass / Fail)

**HMD 461. APPLICATION OF NUTRITION THEORY AND RESEARCH. (3)** *Prerequisite: HMD major and senior standing.* Provides the student with evidence-based research knowledge and skills in dietetic practice.

**HMD 462. MEDICAL NUTRITION THERAPY II. (4)** *Prerequisite: HMD 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.

**HMD 464. PRACTICUM IN DIETETICS. (3)** *Prerequisite: HMD 362.* Supervised dietetics-related field experience. Practicum sites must be approved by the instructor. Students are responsible for field experience expenses and transportation.

**HMD 465. COMMUNITY NUTRITION. (3)** *Prerequisite: HMD 361 and senior standing.* Review of community resources, delivery of nutrition education and counseling in diverse populations. Students are responsible for any field experience expenses and transportation.

**HMD 470. ADVANCED LODGING MANAGEMENT. (3)** *Prerequisites: HMD 276.* Study of ethical decision making, risk management, preparation and analysis of financial information, feasibility studies and trends in the lodging industry.

**HMD 471. FOOD SERVICE OPERATIONS MANAGEMENT. (3)** *Prerequisites: HMD 251 and senior standing.* Study and application of principles of food service operations. Students are responsible for any field trip expenses and transportation. .

**HMD 472. STRATEGIC MANAGEMENT IN THE HOSPITALITY INDUSTRY. (3)** *Prerequisites: HMD 373 and senior standing;* Identification of problems, solutions, and the implementation of effective business and corporate strategies. Students are responsible for any field experience expenses and transportation.

**HMD 473. BEVERAGE MANAGEMENT. (3)** *Prerequisites: HMD 251 and HMD 275 or permission of instructor. Must be 21 years of age with valid ID.* Management of beverage operations, including alcoholic and non-alcoholic beverages; risk-liability management; staff training and responsible customer service; beverage pricing and cost control; and food and beverage pairings. Field trips / travel at student's expense.

**HMD 475. ADVANCED HOSPITALITY EVENT PLANNING. (3)** *Prerequisites: HMD 375.* Identification of various elements involved in successful planning of hospitality events. Students will learn how to design, plan, and evaluate professional events. An event planning project will be required for successful completion of the course. Field trips at student's expense.

**HMD 476. GLOBAL CUISINE. (3)** Exploration of cuisines, customs, and culture from regions of the world. Experiential exploration of food and culture taught in a travel and a cooking learning environment. The laboratory component includes preparation of a variety of international recipes. Regions vary per term. Field trips / travel at student's expense.

## COURSE DESCRIPTIONS

### HON – HONORS

#### POTTER COLLEGE OF ARTS & LETTERS

**HON 105. READING THE WORLD: CONTEMPORARY CULTURAL LITERACY. (1)** *Prerequisites:* 3.2 GPA or permission of instructor. Intensive weekly discussion and contextualization of current events, with a view to preparing students for future national and international scholarship competitions. Students will be evaluated on the basis of their engagement in discussion and quality of a final essay written in the style of a major scholarship application.

**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. 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. (1-3)** *Prerequisites / Corequisites:* Good standing in the Honors College or Honors eligibility (minimum 3.2 GPA). A focus on the theoretical knowledge and practical skills that will lay the foundation for becoming an effective citizen. Students will participate in large group lecture and small group seminars.

**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. (1-3)** *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.

#### COLLOQUIA

**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 specific 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 specific issues on which to base analytical writing projects.

#### INDEPENDENT RESEARCH

**HON 203. INDEPENDENT RESEARCH. (1-3)** Independent research allowing 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 allowing 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 MAINTENANCE AND OPERATION. (2)** Structures, equipment, and maintenance of greenhouse facilities and an introduction to basic techniques for growing floriculture crops.

**HORT 317. GREENHOUSE MAINTENANCE AND OPERATION 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 340. COMMERCIAL FLORICULTURE PRODUCTION. (3)** *Prerequisites:* HORT 316 and 317. Commercial greenhouse production of floriculture crops, focusing on the production of bedding plants, potted flowering plants, foliage plants and other miscellaneous crops.

**HORT 401. LANDSCAPE PLANTS II. (2)** *Prerequisite:* HORT 301 or permission of instructor. *Corequisite:* HORT 402. 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)** *Prerequisite:* HORT 402 or permission of instructor. *Corequisite:* HORT 404. 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)** *Prerequisite:* AGRO 110. *Corequisite:* HORT 406. 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)** *Prerequisite:* AGRO 110. *Corequisite:* HORT 408. 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 420. FLORAL SHOP MANAGEMENT. (3)** *Special requirements: Enrollment restricted to students seeking a minor in floristry. Permission of instructor is required.* Principles of floral shop management, including sourcing, purchasing, distributing, marketing, and selling floriculture products. This course is restricted to students with a Floristry minor.

**HORT 426. VITICULTURE. (3)** *Prerequisites: AGRO 110 and AGRO 350 or permission of instructor.* An introductory study of grape culture including morphology and growth habit, geographical distribution, dormant pruning techniques, canopy management, management of grapevine pests, and vineyard establishment / maintenance. Students must arrange their own travel to the field site.

**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 & LETTERS**

**ANCIENT GREECE AND ROME**

**HUM 191. FINE ARTS OF ANCIENT GREECE AND ROME. (3)** A study of classical painting, sculpture, and architecture.

**HUM 192. LITERATURE AND DRAMA OF ANCIENT GREECE AND ROME. (3)** This course includes the works of the Greek tragedians, Homer, Aristophanes, and Vergil.

**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.

**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.

**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.

**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.

**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.

**HUM 182. LITERATURE OF THE MODERN WESTERN WORLD. (3)** This course surveys the great literary works of the past two centuries in the West.

**HUM 183. PHILOSOPHY AND RELIGION OF THE MODERN WESTERN WORLD. (3)** A study of philosophical and religious developments in the contemporary period.

**HUM 240. GEOMETRY IN ART AND ARCHITECTURE. (3)** *Prerequisite: Any Colonnade Foundations MATH course with a B or better; 21 hours of Foundations and Explorations Courses, or junior status.* Euclidean geometry with historical applications in art and architecture, such as tiling, circular and spiral designs, designs of the great cathedrals in Europe, Buddhist stupas in Asia, Islamic art, the development of visual perspective, and musical ratios. Equivalent to MATH 240.  
**Colonnade K-SY**

**ID – INSTRUCTIONAL DESIGN**  
**SCHOOL OF TEACHER EDUCATION**

**ID 460. INTRODUCTION TO INSTRUCTIONAL DESIGN. (3)** Systematic approach to instructional design, the contexts of application of this approach, and the roles of professionals in this field; adapt and apply the instructional design (ID) process in a flexible and innovative manner.

**ID 465. ANALYSIS AND DESIGN OF TRAINING. (3)** *Prerequisites: Junior standing or instructor approval. Prerequisite or Corequisite: ID 460.* Foundational information and activities to develop the skills necessary to analyze learners, learning context and skills, and design learning activities.

**ID 470. DEVELOPMENT AND EVALUATION OF TRAINING. (3)** *Prerequisites: ID 460 and 465 or instructor approval.* Foundational information and activities to develop, evaluate, and revise training activities.

**ID 475. INTERACTIVE MULTIMEDIA FOR TRAINING. (3)** *Prerequisites: ID 460 and 465 or instructor approval. Prerequisite or Corequisite: ID 470.* Application of multimedia design principles in training settings. Students will design and develop a prototype for a multimedia instructional or training module in a specified context.

**IDFM – INTERIOR DESIGN AND FASHION MERCHANDISING**  
**DEPARTMENT OF APPLIED HUMAN SCIENCES**

**IDFM 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.

**IDFM 101. FOUNDATIONS OF INTERIOR DESIGN. (1)** An exploration of the interior design profession including its many aspects and challenges, the required and continuing education, identification of the role of the interior designer, and career options.

**IDFM 120. VISUAL DESIGN I. (3)** Introduction to the fundamentals of visual design and techniques of representation through exploration of the elements and principles of design, the design process, English language arts and conceptual sketching. Individual work, teamwork and presentation skills will be emphasized.

**IDFM 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**

**IDFM 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.

**IDFM 151. SURVEY OF ARCHITECTURE AND INTERIORS 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.

**IDFM 152. SURVEY OF ARCHITECTURE AND INTERIORS 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.

**IDFM 201. INTERIOR DESIGN STUDIO I. (4)** *Corequisites: IDFM 120 and IDFM 243.* Study of the principles of spatial design expressed by two-and-three-dimensional representation. Problem solving through elements of form, space and color.

**IDFM 221. VISUAL DESIGN II. (3)** *Prerequisite: IDFM 120.* Exploration of the conveyance of ideas and information expressed with two-dimensional images through the use of electronic resources.

**IDFM 222. CAD IN HUMAN ENVIRONMENT. (3)** Computer aided design and drafting using AutoCAD. Practical applications in interior design and apparel merchandising are addressed through projects.

**IDFM 223. TEXTILES. (3)** A general study of textiles with emphasis on factors that affect the hand, appearance, and performance in clothing and furnishing use. Examination of the fibers, yarns, dyeing, printing and finishing, performance and care. Lecture with lab.

**IDFM 226. FASHION ILLUSTRATION. (3)** *Prerequisites: IDFM 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.

**IDFM 231. TEXTILE AND APPAREL QUALITY ANALYSIS. (3)** *Prerequisites: IDFM 131 (or demonstrated proficiency), IDFM 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.

**IDFM 243. MATERIALS AND FINISHES FOR INTERIOR DESIGN. (3)** *Corequisite: IDFM 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.

**IDFM 244. DIGITAL DESIGN TOOLS. (3)** *Prerequisite: IDFM 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.

**IDFM 300. INTERIOR DESIGN STUDIO II. (4)** *Prerequisites: IDFM 201, 243. Corequisite: IDFM 222.* Investigation into understanding of conceptual, spatial principles applicable to interior design; development of two- and three-dimensional representation techniques and application of color theory.

**IDFM 301. INTERIOR DESIGN STUDIO III. (4)** *Prerequisite: IDFM 221, 222 & 300. Corequisite: IDFM 304, 344, & 427.* Integration of basic building systems with conceptual, organizational, and spatial principles of design to create complete interior environments. **Course Fee**

## COURSE DESCRIPTIONS

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**IDFM 302. INTERIOR DESIGN STUDIO IV. (4)** *Prerequisite:* IDFM 301. Non-residential design problems of intermediate complexity with emphasis on application of advanced programming and life safety issues. **Course Fee**

**IDFM 304. LIGHTING AND ENVIRONMENTAL CONTROLS. (3)** *Corequisite:* IDFM 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.

**IDFM 308. DESIGN AND THE HUMAN LIFE CYCLE. (3)** Exploration of the principles of anthropometrics, universal design and Americans with Disabilities codes used by Interior Designers to create environments in residential and public buildings that contributes to inclusion, safety, and emotional well-being of the user.

**IDFM 313. PRACTICUM IN INTERIOR DESIGN FASHION MERCHANDISING. (3)** *Prerequisite:* Permission of instructor. Supervised practicum experience. Students perform professional functions with pre-approved cooperating business. Field experience. Transportation at student's expense.

**IDFM 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.

**IDFM 322. MERCHANDISING I FOR IDFM. (3)** *Prerequisites:* IDFM 132, MKT 220. Study of the principles of merchandising design, apparel and textile products with emphasis on the buying function and using merchandise calculations.

**IDFM 332. HISTORY OF 20TH CENTURY FASHION. (3)** *Prerequisite:* IDFM 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.

**IDFM 333. FASHION FUNDAMENTALS. (3)** *Prerequisites:* IDFM 132, MKT 220. 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.

**IDFM 335. APPAREL DESIGN PRODUCTION. (3)** *Prerequisite(s):* IDFM 221, IDFM 131. Overview of fashion industry sectors and business strategies in the planning, creation, production, merchandising, and distribution of fashion brands.

**IDFM 344. DIGITAL RENDERING FOR INTERIORS. (3)** *Prerequisites:* IDFM 222 and IDFM 300. *Corequisite:* IDFM 301. Introduction to computer-aided 3-D modeling using AutoCAD and 20/20 CAP Design Studio software plug-in. Computer-aided visual communication techniques will be introduced as tools in the design/problem-solving process.

**IDFM 360. KITCHEN & BATH DESIGN STUDIO (3)** *Prerequisites / Corequisites / Special Requirements:* IDFM 222 and IDFM 300. Examination of the technical aspects and accessibility issues of designing kitchens. Development of drawings for the kitchen & bath including floor plans, electrical and lighting plans, elevations, and cabinet sections using ANSI (American National Standards Institute) guidelines and graphic presentation standards.

**IDFM 400. SPECIAL PROBLEMS IN INTERIOR DESIGN. (3)** *Prerequisite(s):* IDFM 302, IDFM 344 & IDFM 427. Independent interior design research and projects that reach beyond the current course offerings into areas of more advanced study and techniques.

**IDFM 401. INTERIOR DESIGN STUDIO V. (4)** *Prerequisites:* IDFM 302. *Corequisite:* IDFM 403. Non-residential design problems of advanced complexity integrating previous experiences and applying office practices to the process of design. **Course Fee**

**IDFM 402. SENIOR DESIGN THESIS. (4)** *Prerequisites:* IDFM 401, 403, and 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**

**IDFM 403. BUSINESS PRINCIPLES AND PRACTICES FOR INTERIOR DESIGN. (2)** *Corequisite:* IDFM 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.

**IDFM 410. IDFM INTERNSHIP. (3)** *Prerequisite:* IDFM 302 or 334, and IDFM 321. 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.

**IDFM 421. PORTFOLIO DESIGN. (3)** *Prerequisites:* IDFM 302 or IDFM 334, and IDFM 321. 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.

**IDFM 422. TEXTILE DESIGN AND PERFORMANCE. (3)** *Prerequisites:* IDFM 120, IDFM 221 and IDFM 223. 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**

**IDFM 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. Repeatable for a total of 6 hours of credit.

**IDFM 424. HISTORIC TEXTILES. (3)** *Prerequisite:* IDFM 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.

**IDFM 426. FASHION DESIGN MARKET TRENDS. (3)** *Prerequisites:* Student must have completed at least two courses in IDFM, 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.

**IDFM 427. VISUAL DESIGN III. (3)** *Prerequisites:* IDFM 221, IDFM 222. Advanced application of the conveyance of ideas and information expressed with two-dimensional images through the use of electronic resources.

**IDFM 431. CLOTHING AND HUMAN BEHAVIOR. (3)** *Prerequisites:* PSY / PSYS 100 or SOCL 100 and junior standing and 21 hours of Foundations and Exploration courses. 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. **Colonnade K-SC**

**IDFM 432. VISUAL MERCHANDISING AND PROMOTION. (3)** *Prerequisites:* IDFM 120, IDFM 221 and IDFM 334. 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.

**IDFM 433. FASHION SYNTHESIS. (3)** *Prerequisites:* IDFM 333 and IDFM 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**

**IDFM 434. HISTORY OF COSTUME. (3)** Study of costume from selected historic periods. Students are required to analyze socioeconomic influences on clothing. Field experiences.

**IDFM 436. GLOBAL APPAREL MERCHANDISING. (3)** *Prerequisites / corequisites:* IDFM 333 or permission of instructor. Evaluation of the key issues facing textiles and apparel businesses operating supply chains and sourcing in the global economy considering economic, political, and social perspectives and professional implications.

**IDFM 438. MERCHANDISING II FOR IDFM. (3)** *Prerequisite:* IDFM 331 and IDFM 322. Study of the principles of effective fashion merchandising. Students apply learning experiences to store design and layout, management patterns, fashion promotion, and financial control.

**IDFM 444. ENVIRONMENTAL PRODUCT DESIGN AND DEVELOPMENT. (3)** *Prerequisite:* IDFM 344. 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.

**IDFM 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.

**IDFM 448. INTERIOR ILLUSTRATION. (3)** Development of advanced skills in design illustration and presentation. Emphasis is on fast techniques for color rendering.

**IDFM 449. DESIGN HUMANICS. (4)** *Prerequisites: IDFM 300, AMS 163, or IDFM 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.

**IDST – INTERDISCIPLINARY STUDIES  
SCHOOL OF PROFESSIONAL STUDIES**

**IDST 200. INTERDISCIPLINARY STUDY AWAY EXPERIENCE. (1)** *Corequisite: NSEA-999 or NSEB-999 (exchange holding course).* This course examines the Study Away experience through face-to-face and online interactions during a semester-long Study Away program. Repeatable up to 3 times for credit.

**IDST 250. PRIOR LEARNING PORTFOLIO DEVELOPMENT. (1-3)** *Prerequisite: Permission of instructor.* Leads students through the development of a portfolio demonstrating prior college-level knowledge and skills in academic areas. Portfolio may be evaluated for academic credit not to exceed one-fourth of the major / minor nor one-fourth of the credit hours required for the credential. Repeatable up to twice for a maximum of 3 hours. **Course fee**

**IDST 350. INTERDISCIPLINARY STUDIES STUDY ABROAD. (1-6)** *Prerequisite: Consent of instructor.* Supervised study of interdisciplinary studies in a study abroad program. May be repeated for a maximum of 6 hours.

**IDST 369. CAREER RELATED FIELD EXPERIENCE. (1-3)** *Prerequisites: Junior or senior standing with a declared major. Instructor permission is required.* Supervised work experience related to a student's field of study or career goals within a cooperating business, industry, or agency. Course will include career-related learning activities and projects. Students are responsible for all internship-related transportation and travel. Students may repeat twice for a maximum of three 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 390. APPLICATIONS OF INTERDISCIPLINARY STUDIES. (3)** *Prerequisite: Junior standing or permission of instructor and 21 hours of Foundations and Explorations Courses, or junior status.* Application of interdisciplinary studies model to an overarching cultural concern or theme. Students will apply knowledge from different areas of study toward a specified research topic. **Colonnade K-SC-**

**IDST 395. INVESTIGATIVE METHODS IN INTERDISCIPLINARY STUDIES. (3)** *Prerequisite: Junior standing or permission of instructor.* A comprehensive exploration of different approaches to interdisciplinary studies as an academic research discipline or method.

**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 with different topics up to a maximum of 6 credit hours.

**IDST 495. INTERDISCIPLINARY STUDIES CAPSTONE. (3)** *Prerequisites: BIS major (558), senior standing, IDST 395, or permission of the instructor.* Examination of interdisciplinary scholarship and problem-solving, with application based on students' area of emphasis in the major.

**IDST 499. IDST CAPSTONE EXPERIENCE. (1)** *Prerequisites: Senior standing and General Studies Advisor approval.* Independent study requiring development of integrative project. Students must make arrangements in advance for supervision by a faculty member.

**IECE – INTERDISCIPLINARY EARLY CHILDHOOD EDUCATION  
SCHOOL OF TEACHER EDUCATION**

**IECE 320. INTRODUCTION TO EARLY CHILDHOOD ASSESSMENT. (3)** *Prerequisite: SPED 331.* Develop knowledge and skills of assessment with young children with and without disabilities and their families. Minimum of 30 hours of field experience required.

**IECE 321. FAMILY SUPPORTS AND SERVICES. (3)** *Prerequisites: SPED 330; 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: SPED 331; 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: IECE 321; 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: SPED 331 and IECE 320.* 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: SPED 331; 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: SPED 331; 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.

**IECE 421. ADVANCED CURRICULUM AND INSTRUCTION FOR INFANTS AND TODDLERS. (3)** *Prerequisites: FACS 295; 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.

**IECE 422. ADVANCED CURRICULUM DEVELOPMENT FOR YOUNG CHILDREN. (3)** *Prerequisites: FACS 296; 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: SPED 331; 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: Completion of all coursework within the IECE major; or instructor approval. 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 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). **Course Fee**

**IECE 491. PRACTICUM IN INTERDISCIPLINARY EARLY CHILDHOOD EDUCATION. (5)** *Prerequisites: Completion of all coursework within the IECE major; or instructor approval. 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.

**INFO– INFORMATION RETRIEVAL  
SCHOOL OF ENGINEERING AND APPLIED SCIENCES**

**INFO 336. DATABASE AND INFORMATION RETRIEVAL. (3)** *Prerequisite: CS 180 with a grade of "C" or better.* Theory, models and practical design issues of information retrieval and database management, including relational database design, development, implementation and security, information retrieval from unstructured data (text), and web search engine. May not be counted toward a computer science major or minor.

**INS– INFORMATION SYSTEMS  
SCHOOL 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.

## COURSE DESCRIPTIONS

**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 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**

**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, user-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: Permission of program advisor.* 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 International Student Office.)

### ITAL – ITALIAN DEPARTMENT OF MODERN LANGUAGES

**ITAL 100. ITALIAN LANGUAGE AND CULTURE. (1-3)** *Prerequisite: Permission of instructor.* An introduction to Italian and Italian-speaking culture in conjunction with study abroad for students with little or no previous language study. 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.

**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 | Fulfills World Language with a grade of C or better.**

**ITAL 105. INTRODUCTION TO ITALIAN CULTURE. (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)** *Prerequisite: Permission of instructor.* An introduction to Japanese and Japanese-speaking culture in conjunction with study abroad for students with little or no previous language study. 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.

**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 | Fulfills World Language with a grade of C or better.**

**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 equivalent.* 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. **Fulfills World Language with a grade of C or better.**

**JAPN 202. INTERMEDIATE JAPANESE II. (3)** *Prerequisite: JAPN 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. **Fulfills World Language with a grade of C or better.**

**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. **Fulfills World Language with a grade of C or better.**

**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. **Fulfills World Language with a grade of C or better.**

### JOUR – JOURNALISM SCHOOL OF JOURNALISM & BROADCASTING

**JOUR 202. INTRODUCTION TO NEWS WRITING. (3)** Reporting and writing skills primarily focused for print and online news. The course focuses on accuracy, responsibility, clarity, AP style, structure, interviewing, sourcing, and story generation. Research is emphasized. **Course Fee**

**JOUR 301. PRESS LAW AND ETHICS. (3)** *Prerequisites: PS 110, SJB 101, JOUR 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)** *Prerequisite: JOUR 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. MULTIPLATFORM NEWS PRESENTATION. (3)** *Prerequisite: JOUR 202.* Basic instruction in copy editing and headline writing for print and online publication. Course will include topics in visual editing, news selection and ethical considerations. **Course Fee**

**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 print and online. **Course Fee**

**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 323 or 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 467. NEWS / EDITORIAL INTERNSHIP PRACTICUM. (1)** *Prerequisite: Instructor permission.* An intense study of a specific news writing, editing, visual or production skill in a professional media outlet. The skill will be identified and studied through discussion and application. May be repeated for a maximum of 3 credit hours.

**JOUR 481. PROBLEMS IN MASS COMMUNICATION. (3)** In-depth study of challenges in journalism and mass communication. Involves research, planning, execution, and implementation of a project, or projects, guided by the instructor.

**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.

**KORE – KOREAN**  
**DEPARTMENT OF MODERN LANGUAGES**

**KORE 101. ELEMENTARY KOREAN I. (3)** Prepares students to communicate verbally and in writing in simple routine tasks; to understand written or spoken communication on everyday topics and to develop cultural awareness.

**KORE 102. ELEMENTARY KOREAN II. (3)** *Prerequisite: KORE 101 or permission of instructor.* Continuation of the development of communication skills on everyday topics and of cultural insights. **Course Fee | Fulfills World Language with a grade of C or better.**

**LEAD / LEA – LEADERSHIP STUDIES**  
**SCHOOL OF PROFESSIONAL STUDIES (LEAD)**

**LEAD 200 / LEA 200C. INTRODUCTION TO LEADERSHIP STUDIES. (3)** An introduction to the basics of effective leadership including an investigation of leadership theories and assessment of leadership styles. **Colonnade E-SB | SB**

**LEAD 300. LEADERSHIP THEORY AND APPLICATION. (3)** *Prerequisite: Junior standing or permission of the instructor.* A study of leadership concepts, theories, and models; an overview of personal leadership assessments and leadership development plans; enhanced leadership knowledge through experiential learning. Students who have taken LEAD 200 may not earn credit for LEAD 300.

**LEAD 325. LEADING CHANGE. (3)** *Prerequisite: LEAD 200 or LEAD 300 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 LEAD 300 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 LEAD 300 or instructor's permission.* Analysis of contemporary issues from a leadership perspective.

**LEAD 400. LEADERSHIP CAPSTONE. (1-6)** *Prerequisite / Corequisites: LEAD 200 or LEAD 300, and a minimum of 9 hours completed in the major.* A course to assess student's summative knowledge of leadership and provide an opportunity for students to demonstrate how to integrate that knowledge. Not repeatable.

**LEAD 440. LEADING TEAMS. (3)** *Prerequisite: LEAD 200 or LEAD 300 or instructor's permission.* Study of issues impacting team leaders and members; emphasis on examining and analyzing solutions for effective team leadership.

**LEAD 450. LEADERSHIP IN GLOBAL CONTEXTS. (3)** *Prerequisite: LEAD 200 or LEAD 300 or permission of instructor and 21 hours of Foundations and Explorations Courses, or junior status.* Study and analysis of cultural impacts on successful leadership in various geographical areas. Focus on cultural theories and models that influence leadership across contexts. **Colonnade K-LG**

**LEAD 465. LEADERSHIP COACHING. (3)** *Prerequisite: LEAD 200 or LEAD 300 or permission of instructor.* Examination of fundamental leadership coaching skills that improve the adjustment and performance of individuals in an organizational setting. Topics to be covered include: the scope of coaching practice, optimal practitioner characteristics, resiliency training, peer leadership, coaching youth, related organizational dynamics, and coaching interventions and resources. This course also includes an emphasis on experimental learning through coaching practice activities.

**LEAD 475. LEADERSHIP STUDIES SPECIAL TOPICS. (3)** *Prerequisite: LEAD 200 or LEAD 300 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.

**LEAD 498. INDEPENDENT STUDY IN ORGANIZATIONAL LEADERSHIP. (1-6)** *Prerequisite: Prerequisites: LEAD 200 or LEAD 300 or instructor's permission.* Individual research, literature review or professional development project in a specific area of leadership, in close cooperation with supervising faculty. Repeatable three times for up to 6 credit hours.

**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 / LTC – LITERACY**  
**SCHOOL OF TEACHER EDUCATION**

**LTCY 199 / LEA 199C. READING FOR EVIDENCE AND ARGUMENT. (3)** Prepares students to successfully meet the rigorous reading and other literacy requirements of college. Emphasis on refining skills necessary to extract factual evidence from text and make sound arguments through various modes of literacy.

**LTCY 310. EARLY READING, LANGUAGE AND LITERACY. (3)** *Prerequisites: SPED 331; 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. FOUNDATIONS OF TEACHING LITERACY IN THE ELEMENTARY GRADES. (3)** *Prerequisites: EDU 250, PSY 310.* An introduction to literacy instruction for elementary grade children; includes an examination of reading needs, instructional methods, materials, and resources related to the development of standards-based literacy skills and strategies; provides instruction on foundational theories and research. 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 420. LITERACY METHODS IN THE ELEMENTARY GRADES. (3)** *Prerequisites: LTCY 320 and either ELED 345 or SPED 340 with grades of "C" or higher and admission to teacher education.* A second course in literacy designed to offer standards-based, practical applications of instruction that build on the content of LTCY 320. 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 421. CONTENT AREA READING IN THE MIDDLE AND SECONDARY GRADES. (3)** *Prerequisites: EDU 250, MGE 275, AGED 250, or AMS 330 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.

## COURSE DESCRIPTIONS

### MATH / MA – MATHEMATICS DEPARTMENT OF MATHEMATICS (MATH)

Courses numbered below 136 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 116/MATH 123 (MATH 115); MATH 117 (MATH 115 and 116/123); MATH 118 (MATH 115, 116 and 117); MATH 119 (MATH 115, 116/123, and 118); MATH 136 (MATH 115, 116/123, 117, 118, and 119); MATH 137 (MATH 115, 116/123, 117, 118, 119, and 136); MATH 310 (MATH 109); MATH 382 (MATH 109 and 183); STAT 301 (MATH 109 and 183). Students may only take the courses MATH 116 and MATH 123 for a total of three graded attempts.

**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. **Colonnade F-QR | QR**

**MATH 112. PROBLEM SOLVING AND MATHEMATICAL SKILLS FOR TEACHERS. (3)** Development of mathematical skills and problem-solving techniques necessary for preservice teachers. Topics include: number and algebra, geometry, probability and statistics. **Colonnade F-QR | QR**

**MATH 115 / MA 115C. APPLIED COLLEGE ALGEBRA. (3)** Prerequisites / Corequisites: Satisfactory scores on WKU Math Placement Exam and Math ACT or equivalent or DMA 096C with a grade of "C" or better. Intended primarily for students who are not majoring in a scientific or technical field; not intended for students whose curriculum requires trigonometry or calculus. Emphasis is on real-world problems that involve reading, writing, calculating, synthesizing, and clearly reporting results. Topics include linear, quadratic, exponential and logarithmic functions, and systems of equations. (Graphing calculator required). **Colonnade F-QR | QR**

**MATH 116 / MA 116C. COLLEGE ALGEBRA. (3)** Prerequisites: Math ACT score of 22 or better or Math SAT score of 510 or better or a score of 14 or better on the WKU Math Placement Exam or a score of 14 or better on the KYOTE or a score of 50 or better on the COMPASS (College Algebra domain) or DMA 096C with a grade of "C" or better. Graphing and problem solving are integrated throughout the study of polynomial, absolute value, rational, radical, exponential, and logarithmic functions. (Graphing calculator required.). **Colonnade F-QR | QR**

**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; or MATH 123 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.) **Colonnade F-QR | QR**

**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)

**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.)

**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 123. MATHEMATICAL APPLICATIONS FOR BUSINESS. (3)** Prerequisites / Corequisites: ACT score of 22 or better or Math SAT score of 510 or better or WKU Math Placement Exam score of 14 or better or KYOTE score of 14 or better or DMA 096C with a grade of C or better. Business applications of linear, quadratic, exponential and logarithmic functions, plus a brief introduction to probability, the mathematics of finance, and derivatives as they apply to problem-solving strategies in business-related fields. **Colonnade F-QR | QR**

**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. **Colonnade F-QR | QR**

**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. **Colonnade F-QR | QR**

**MATH 183. INTRODUCTORY STATISTICS. (3)** Prerequisite: Satisfactory score on Math ACT and MPE, or COMPASS or KYOTE; 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. **Colonnade F-QR | QR**

**MATH 205. NUMBER SYSTEMS AND NUMBER THEORY FOR TEACHERS. (3)** Prerequisites: MATH 112 or 116 or 117 or 136 or 183 with a grade of "C" or better; for students in Early Grades (K-5), Middle Grades (5-9) or SPED 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: MATH 205 with a grade of "C" or better; for students in the Early Grades (K-5), Middle Grades (5-9) or SPED Teacher Certification programs only. Conceptual development of fundamental concepts of geometry and measurement.

**MATH 237. MULTIVARIABLE CALCULUS. (4)** Prerequisites: 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 240. GEOMETRY IN ART AND ARCHITECTURE. (3)** Prerequisites: Any Colonnade Foundations MATH course with a B or better; 21 hours of Foundations and Explorations Courses, or junior status. Euclidean geometry with historical applications in art and architecture, such as tiling, circular and spiral designs, designs of the great cathedrals in Europe, Buddhist stupas in Asia, Islamic art, the development of visual perspective, and musical ratios. Equivalent to HUM 240. **Colonnade K-SY**

**MATH 275. INTRODUCTORY TOPICS IN MATHEMATICS. (1-3)** Prerequisites: 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 Ogden College 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, ENGR 295, GEOL 295, and PHYS 295.

**MATH 302. INTRODUCTION TO ADVANCED MATHEMATICS FOR MIDDLE GRADES TEACHERS. (3)** *Prerequisite: MATH 136.* Development of skills in reasoning, justification, abstraction, generalization, and making connections through the study of selected topics from logic, sets, relations and functions, combinatorics, number theory, graph theory, and matrix algebra, as appropriate for middle grades mathematics teachers

**MATH 304. FUNCTIONS, APPLICATIONS AND EXPLORATIONS. (3)** *Prerequisite: MATH 137 or MATH 302 with a grade of "C" or better.* 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 with a grade of "C" or better.* 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 306. APPLIED AND COMPUTATIONAL LINEAR ALGEBRA. (3)** *Prerequisites: Math placement eligibility above MATH 116 or MATH 116 with a grade of "C" or better, and MATH 183 or another college-level 3-hour statistics course with a grade of "C" or better; or MATH 136 or MATH 142 with grade of "C" or better.* Basic concepts and computational techniques of matrix and linear algebra. Practical methods using computer software for small-to-large data sets. Applications in economics, finance, informatics, statistics, and social, engineering, physical and biological sciences. Computer assignments are required. Not accepted for credit toward a mathematics major or minor.

**MATH 307. INTRODUCTION TO LINEAR ALGEBRA. (3)** *Prerequisites: MATH 137 with a grade of "C" or better or MATH 136 with a grade of "A" or MATH 142 with a grade of "A" or both MATH 136 and CS 221 with grades 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: MATH 205 with a grade of "C" or better; for students in the Elementary Education (K-5), Middle Grades Mathematics (5-9) or SPED 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 with a grade of "C" or better.* 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 with a grade of "C" or better.* 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 with grades of C or better.* Introduction to groups, rings, polynomial rings, integral domains, and fields.

**MATH 323. GEOMETRY I. (3)** *Prerequisite: MATH 307 with a grade of "C" or better.* 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 with a grade of "C" or better.* Methods of solution of differential equations, existence and nature of solutions, Laplace transform method, infinite series and numerical solutions, and applications.

**MATH 337. ELEMENTS OF REAL ANALYSIS. (3)** *Prerequisites: MATH 237, 307, and 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 with a grade of C or better. 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 with a grade of C or better.* 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 225 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. (3)** *Prerequisites: MATH 137, and MATH 237 or MATH 307 or MATH 310, and CS 180 or CS 146, all with grades of "C" or better.* Computer arithmetic, roots of equations, polynomial approximation and interpolation, numerical differentiation and integration. Computer solutions of problems will be required. Equivalent to CS 405.

**MATH 406. NUMERICAL ANALYSIS II. (3)** *Prerequisites: MATH 237, 307, 331, and either MATH 405 or CS 405, all with grades of C or better.* 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)** *Prerequisite: 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 with a grade of "C" or better.* 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 with a grade of "C" or better.* The theory of finite groups and related algebraic systems. Lagrange's Theorem, Sylow Theorems, and the structure of finite groups are studied. Applications of group theory to the study of algebraic problems and symmetry.

**MATH 421. PROBLEM SOLVING FOR SECONDARY TEACHERS. (3)** *Prerequisites: MATH 137 and MATH 307 or MATH 310 with grades of "C" or better or permission of the 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.

## COURSE DESCRIPTIONS

**MATH 423. GEOMETRY II. (3)** *Prerequisite: MATH 137 and MATH 323 with grades of "C" or better or permission of the instructor.* 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 with a grade of "C" or better.* Topics in analysis chosen from inverse and implicit function theorems, differentiation, integration, infinite series, series of functions, and elementary functional analysis.

**MATH 435. PARTIAL DIFFERENTIAL EQUATIONS. (3)** *Prerequisites: MATH 237, 307, and 331 all with grades of C or better.* 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 with a grade of "C" or better, 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 with a grade of "C" or better.* 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)** *Prerequisites: MATH 237 and 307 with grades of C or better.* 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 with grades of C or better.* 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. (1-3).** *Prerequisite: Completion of at least 25 hours of mathematics courses, with grades of C or better, required for the Middle Grades Mathematics Degree. Prerequisite/ Corequisite: MATH 411 or MATH 421.* Designed to integrate the ideas and techniques students have encountered in the middle grades mathematics major. Students undertake independent investigations in 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. (1-3)** *Prerequisites: MATH 237 and MATH 317 with grades of C or better, and senior standing or permission of instructor.* Students will study articles in current mathematical journals or undertake independent investigations in mathematics. Written and oral presentations are required.

### ME – MECHANICAL ENGINEERING SCHOOL OF ENGINEERING AND APPLIED SCIENCES

**ME 176. MECHANICAL ENGINEERING FRESHMAN DESIGN. (1)** *Corequisite: MATH 117 or higher.* An introduction to mechanical engineering. The design process and basic professional tools are introduced through multiple projects. Permission of instructor only. **Course Fee**

**ME 180. FRESHMAN DESIGN II. (3)** *Prerequisites: ME 176 with a grade of "C" or better 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, Pre-major requirements satisfied in iCAP.* Enhances design abilities through individual and team design projects, develops structured problem-solving techniques and written, oral and graphical communication skills. **Course Fee**

**ME 220. ENGINEERING THERMODYNAMICS I. (3)** *Prerequisites: EM 221 or EM 222, and MATH 331. Corequisite: 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: CHEM 116 with a grade of C or better or CHEM 120 with a grade of C or better, MATH 136 with a grade of C or better. Corequisite: 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: CHEM 106 or CHEM 121. 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. **Course Free**

**ME 300. JUNIOR DESIGN. (2)** *Prerequisites: ME 200 with a grade of "C" or better ME 220, ME 344.* 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. **Course Fee**

**ME 310. ENGINEERING INSTRUMENTATION AND EXPERIMENTATION. (3)** *Prerequisites: EM 303, EE 210, ME 347 (may be taken concurrently).* 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.

**ME 325. ELEMENTS OF HEAT TRANSFER. (3)** *Prerequisite: ME 330. Corequisite: ME 333.* 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)** *Prerequisites: MATH 331, ME 220 with a grade of C or better, MATH 237. Corequisite: ME 332.* 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 332. FLUID MECHANICS LABORATORY. (1)** *Prerequisite: MATH 331, ME 220 with a grade of C or better, MATH 237, ME 310. Corequisite: ME 330.* An applied laboratory in the modeling, prediction, and measurement of fluid mechanics components and systems, with emphasis on the preparation of engineering reports, uncertainty analysis, and the experimental design plan process. System level experiments include fluid property measurements, pipe flow and turbomachinery characteristics. **Course Fee**

**ME 333. HEAT TRANSFER LABORATORY. (1)** *Prerequisite: ME 332. Corequisite: ME 325.* An applied laboratory in the modeling, prediction, and measurement of fluid mechanics components and systems, with emphasis on the preparation of engineering reports, uncertainty analysis, and the experimental design plan process. System level experiments include heat transfer measurements and heat transfer component characteristics. **Course Fee**

**ME 344. MECHANICAL DESIGN. (3)** *Prerequisites: EM 303 with a grade of C or better, ME 240 with a grade of C or better.* 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. Prerequisites or corequisites: 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. **Course Fee**

**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 (may be taken concurrently) and ME 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 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.

**ME 495. WKU ME SELECTED PROJECTS. (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.

**ME 496. WKU – ME SELECTED TOPICS (FALL). (3)** *Prerequisite: 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.

**ME 497. WKU – ME SELECTED TOPICS (SPRING). (3)** *Prerequisite: 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.

**ME 498. UK – ME SELECTED TOPICS (FALL). (3)** *Prerequisite: 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.

**ME 499. UK – ME SELECTED TOPICS (SPRING). (3)** *Prerequisite: 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.

**METR– METEOROLOGY AND CLIMATOLOGY  
DEPARTMENT OF GEOGRAPHY AND GEOLOGY**

**METR 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 hour lab) **Course Fee | Colonnade E-NS (SL) | NS | SL**

**METR 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.

**METR 322. GLOBAL CLIMATE SYSTEMS. (4)** *Prerequisites: METR 121; 21 hours of Foundations and Explorations Courses, or junior status.* 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. **Colonnade K-SY**

**METR 324. WEATHER ANALYSIS AND FORECASTING. (3)** *Prerequisite: METR 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. **Course Fee**

**METR 325. METEOROLOGICAL INSTRUMENTATION AND MEASUREMENT. (3)** *Prerequisite: METR 121.* Introduces the purpose, operation, and application of meteorological instrumentation and the treatment of meteorological measurements. **Course Fee**

**METR 335. SATELLITE / RADAR METEOROLOGY. (3)** *Prerequisite: METR 324.* An introduction to remote sensing specific to the atmospheric sciences. Specific attention is given to analysis, diagnostic, and prognostic determinations using various satellites, as well as surface and space-based active radar systems. Specific applications focus on synoptic and mesoscale phenomena, including large-scale kinematics and morphology, clouds, derived radar interpretation, precipitating systems, and precipitation measurement.

**METR 422. PHYSICAL CLIMATOLOGY. (4)** *Prerequisites: METR 324 and MATH 237, both with grades of "C" or better.* 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.

**METR 426. APPLIED METEOROLOGY / CLIMATOLOGY. (3)** *Prerequisite: METR 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.

**METR 431. DYNAMIC METEOROLOGY I. (3)** *Prerequisites: METR 324 and MATH 237, both with grades of "C" or better.* 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.

**METR 432. SYNOPTIC METEOROLOGY. (3)** *Prerequisites: METR 324 and MATH 237, both with grades of "C" or better.* 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**

**METR 433. DYNAMIC METEOROLOGY II. (3)** *Prerequisite: METR 431 with a grade of "C" or better.* 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.

**METR 437. MESOSCALE METEOROLOGY. (3)** *Prerequisites: METR 432 with a grade of "C" or better.* Addresses the analysis and prediction of convective and Mesoscale phenomena, such as Mesoscale convective systems, severe thunderstorms, tornadoes and hurricanes. **Course Fee**

**METR 438. PHYSICAL METEOROLOGY. (3)** *Prerequisites: METR 431 with a grade of "C" or better.* Addresses the microscopic processes related to cloud formation, radiative transfer, precipitation processes, and dry and moist thermodynamics.

**METR 439. ATMOSPHERIC MODELING. (3)** *Prerequisites: METR 324 and CS 170 both with grades of "C" or better.* An introduction to numerical weather and climate modeling techniques and models, with focus on modeling fundamentals, including dynamics, physical parameterizations, grids and resolutions, model structures and components. Includes hands-on experience with designing numerical experiments, configuring and running model simulations, post-processing model outputs, and visualization.

**METR 460. CLIMATE TELECONNECTIONS. (3)** *Prerequisites: METR 322 or METR 324 or permission of instructor.* Analysis of the climate impacts and physical mechanisms of atmospheric and oceanic teleconnections that commonly affect weather patterns in the northern hemisphere.

## COURSE DESCRIPTIONS

### MFG— MANUFACTURING MANAGEMENT SCHOOL OF PROFESSIONAL STUDIES

**MFG 240C. MANUFACTURING OPERATIONS MANAGEMENT. (3)** *Prerequisite:* MGT 210. 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:* MGT 210. 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.

### 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. Equivalent to SEC 475.

**MGE 477. TEACHING MIDDLE GRADES MATHEMATICS. (3)** *Prerequisites:* MGE 275, PSY 310, MATH 211 and 212 (with departmental approval, students may substitute MATH 205 and 206). 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. Equivalent to SEC 479.

**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. Equivalent to SEC 481.

**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) SCHOOL 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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**MGT 303. INTERNATIONAL BUSINESS. (3)** *Prerequisites:* 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. **Course Fee**

**MGT 305. ETHICS AND CRITICAL THINKING. (3)** *Prerequisites:* 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. **Course Fee**

**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. **Course Fee**

**MGT 313. DECISION MODELING. (3)** *Prerequisites:* 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)** *Prerequisites:* ECON 206 or equivalent and 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. **Course Fee**

**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. **Course Fee**

**MGT 326. MANAGING PROJECTS IN ORGANIZATIONS. (3)** *Prerequisites:* MGT 210 and ECON 206. Project Management is a business tool that focuses on the projects central role in organizations along with addressing the project life-cycle and techniques for initiation, planning, scheduling, controlling and execution. Emphasis is on organizational, managerial, human behavior and interdisciplinary issues relevant for managing successful projects from the business perspective. **Course Fee**

**MGT 333. MANAGEMENT OF NONPROFIT ORGANIZATIONS. (3)** Overview of nonprofit organizations, including budgeting, finance, marketing, communication, boards of directors, volunteers and strategic planning. **Course Fee**

**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. **Course Fee**

**MGT 383. HUMAN RESOURCE INFORMATION SYSTEMS. (3)** *Prerequisite:* MGT 311 and CIS 243. Components of HRIS and how one can be used to create a competitive advantage. Spreadsheet analysis will be also used to develop analytical skills. **Course Fee**

**MGT 390. VALUE CREATION IN EMERGING MARKETS. (3)** *Prerequisite:* Junior standing. Examination of techniques for competing in emerging markets. **Course Fee**

**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, NLRA, OSHA, workers' compensation, and other regulatory development. **Course Fee**

**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). **Course Fee**

**MGT 411. EFFECTIVE STAFFING PRACTICES. (3)** *Prerequisite: MGT 311 or PSYS 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. **Course Fee**

**MGT 413. INTERNATIONAL HUMAN RESOURCE MANAGEMENT. (3)** *Prerequisite: MGT 311.* Covers issues involved with managing human resources globally. Compares customs and regulations among various countries in the core areas of human resource management, including selection, development, compensation, performance management, and labor relations. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**MGT 417. ORGANIZATIONAL BEHAVIOR. (3)** *Prerequisite: MGT 210.* An advanced course designed to develop an understanding of managing behavior in organizations. **Course Fee**

**MGT 419. MANAGEMENT OF ORGANIZATIONAL CONFLICT. (3)** *Prerequisite: Junior standing.* Designed to develop skills needed to manage interpersonal, intragroup, and intergroup conflict in organizations. **Course Fee**

**MGT 473. TRAINING IN BUSINESS AND INDUSTRY. (3)** *Prerequisite: MGT 311 or PSYS 370 or permission of the instructor.* An introduction to theories, research and methods of training needs analysis, program design, implementation, and evaluation. Equivalent to PSYS 473. **Course Fee**

**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) **Course Fee**

**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. **Course Fee**

**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**

**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) **Course Fee**

**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**

**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 (CADET INITIAL ENTRY TRAINING). (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 (CADET LEADER 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**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

## COURSE DESCRIPTIONS

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**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. **Course Fee**

**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. **Course Fee**

**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 non-sports products and services. **Course Fee**

**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. **Course Fee**

**MKT 328. DIGITAL MARKETING. (3)** *Prerequisites: MKT 220 and CSCI 145C 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. **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

**MKT 420. SENIOR SEMINAR-MARKETING. (3)** *Prerequisite: MKT 220.* A special topics course covering subjects of current interest in marketing. **Course Fee**

**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. **Course Fee**

**MKT 422. MARKETING MANAGEMENT. (3)** *Prerequisites: MKT 421 and graduating marketing major.* 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. **Course Fee**

**MKT 423. SUPPLY CHAIN MANAGEMENT. (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. **Course Fee**

**MKT 424. SALES FORCE MANAGEMENT. (3)** *Prerequisite: MKT 220, MKT 325.* Principles and concepts of sales planning and control, organizing sales departments, developing territories, recruiting, selecting, training, motivating and compensating salespeople, and controlling sales operations. **Course Fee**

**MKT 425. ADVANCED PERSONAL SELLING STRATEGIES. (3)** *Prerequisites: MKT 220, MKT 325, senior standing (90 hours successfully completed).* 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. **Course Fee**

**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. **Course Fee**

**MKT 431. ADVANCED SOCIAL MEDIA MARKETING. (3)** *Prerequisite: MKT 331.* Provides a more advanced perspective on knowledge gained in MKT 331, Social Media Marketing. Students will apply concepts through development of strategies and content for a variety of social media platforms, as well as gauge the effectiveness of content creation through analytics. **Course Fee**

**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) **Course Fee**

**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. **Course Fee**

**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. **Course Fee**

### MLNG – MODERN LANGUAGES DEPARTMENT OF MODERN LANGUAGES

**MLNG 100. LANGUAGE AND CULTURE ON-SITE. (1-3)** This course is a survey of non-English language and foreign culture in conjunction with study abroad for students with little or no previous language study. This course will be used in instances where WKU does not offer the language in question. Repeatable for a total of three credit hours.

**MLNG 410. SECOND LANGUAGE ACQUISITION. (3)** *Prerequisites: 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, SPED 330, SEC 351, PSY 310. 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 SEC 474.

**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 sections for the language of their major. May be repeated with different topics for a maximum of 6 hours of credit.

### MUS – Music DEPARTMENT OF MUSIC (MUS)

#### 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.* Thorough training in the melodic, harmonic and rhythmic fundamentals of music: triads, intervals, keys, scales, rhythm and meter, voice leading, diatonic triads in root position and inversion, harmonic progression, rhythmic reading, sight singing, melodic and harmonic dictation.

**MUS 101. THEORY II. (3)** *Prerequisite: MUS 100.* Continuation of melodic and harmonic dictation, rhythmic reading, and sight singing, phrase and period, non-chord tones, diatonic seventh chords, secondary dominant and leading tone chords.

**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.* Continuation of melodic and harmonic dictation, rhythmic reading, sight singing, modulation, binary and ternary forms, mode mixture, Neapolitan chords, and augmented sixth chords.

**MUS 201. THEORY IV. (3)** *Prerequisite: MUS 200.* Continuation of melodic and harmonic dictation, rhythmic reading, and sight singing, composition of sonatina in eighteenth century style for piano, enharmonic modulation, extended and altered dominant chords, late nineteenth century techniques, techniques of the twentieth century, post-tonal techniques.

**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: MUS 101 or consent of the instructor.* Study and assignment will depend on previous background and creative ability.

**MUS 304. FORM AND ANALYSIS. (2)** *Prerequisite: MUS 201.* The study of the basic formal structures of tonal and twentieth century music through score study and compositional exercises.

**MUS 325. MUSIC ENTREPRENEURISM. (2)** *Prerequisite: MUS 201.* The practical skills necessary for successfully navigating the business aspects of a professional musician in the 21<sup>st</sup> century. Topics range from creating resumes and cover letters to establishing a private teaching studio and booking concerts.

**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 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.

**MUS 314. COMPREHENSIVE ARTS EDUCATION FOR THE ELEMENTARY TEACHER. (3)** 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.

**MUS 120. 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. **Colonnade E-AH | AH**

**MUS 277. WORLD MUSIC. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* 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. **Colonnade K-LG**

**MUS 320. ROCK AND ROLL: MUSIC FOR A NEW GENERATION. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* A study of the development of Rock and Roll as a musical style from the mid-1950's to 1990 with an emphasis on listening and musical characteristics. Includes notable artists/bands, innovations and trends, cultural and social impacts, and economic / political influences. **Colonnade K-SC**

**MUS 322. THE BLUES: MUSIC FROM THE DELTA TO CHICAGO. (3)** *Prerequisite: 21 hours of Foundations and Explorations courses or junior status.* A study of the Blues as an American music genre with emphasis on the performers, musical styles, instrumentation, and lyric content, as well as the development of cultural, social, economic, and political impact. **Colonnade K-SC**

**MUS 323. MUSIC AND DRAMA: FROM OPERA TO MUSICAL THEATRE AND FILM. (3)** *Prerequisites: MUS 120 and 21 hours of Foundations and Explorations Courses, or junior status.* How music intensifies dramatic situations in opera, the musical, and film. Will include considerations of influences from earlier music, literature, tastes of the audience, and social conditions. **Colonnade K-SC**

**MUS 326. THE HISTORY OF MUSIC I. (3)** Music history from early times through Late Baroque. Assigned readings and recorded illustrations.

**MUS 327. THE HISTORY OF MUSIC II. (3)** *Prerequisite: MUS 120 or instructor permission required; 21 hours of Foundations and Explorations Courses, or junior status.* Music history from Classical through present. Assigned readings and recorded illustrations. **Colonnade K-SC**

**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.

## COURSE DESCRIPTIONS

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### 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. CHOIR. (1)** Performing ensembles are open to the entire campus community. Most ensembles require an audition prior to membership, and there are varying levels of performance difficulty. Some of these ensembles are required for music degrees.

**MUS 343. GUITAR ENSEMBLE. (1)** *Additional Enrollment Requirements: Instructor permission.* Performing ensembles are open to the entire campus community. Most ensembles require an audition prior to membership, and there are varying levels of performance difficulty. Some of these ensembles are required for music degrees.

**MUS 344. UNIVERSITY ORCHESTRA. (1)** Performing ensembles are open to the entire campus community. Most ensembles require an audition prior to membership, and there are varying levels of performance difficulty. Some of these ensembles are required for music degrees.

**MUS 347. MARCHING BAND. (1)** Performing ensembles are open to the entire campus community. Most ensembles require an audition prior to membership, and there are varying levels of performance difficulty. Some of these ensembles are required for music degrees. **Course Fee**

**MUS 348. CONCERT BAND. (1)** Performing ensembles are open to the entire campus community. Most ensembles require an audition prior to membership, and there are varying levels of performance difficulty. Some of these ensembles are required for music degrees.

**MUS 370. CHAMBER CHOIR. (1)** Performing ensembles are open to the entire campus community. Most ensembles require an audition prior to membership, and there are varying levels of performance difficulty. Some of these ensembles are required for music degrees.

**MUS 371. JAZZ ENSEMBLE. (1)** Performing ensembles are open to the entire campus community. Most ensembles require an audition prior to membership, and there are varying levels of performance difficulty. Some of these ensembles are required for music degrees.

**MUS 377. PEP BAND. (1)** Performing ensembles are open to the entire campus community. Most ensembles require an audition prior to membership, and there are varying levels of performance difficulty. Repeatable throughout a student's college career.

**MUS 378. CAMPUS COMMUNITY BAND. (1)** Performing ensembles are open to the entire campus community. Most ensembles require an audition prior to membership, and there are varying levels of performance difficulty. Some of these ensembles are required for music degrees

### 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 374. OPERA THEATRE. (1)** Performing ensembles are open to the entire campus community. Most ensembles require an audition prior to membership, and there are varying levels of performance difficulty. Some of these ensembles are required for music degrees.

**MUS 379. 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)

### 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.

**MUS 360. ACCOMPANYING. (1)** *Special Course Requirements: Instructor permission.* Accompanying skills to include exercise appropriate for choral/vocal warm-up, instrumental and vocal solo accompaniments, choral accompaniments, and choral part-reading.

### APPLIED MUSIC INSTRUCTION

**MUS 150, 350. APPLIED MUSIC SECONDARY. (1)** Secondary lessons for non-majors. **Course Fee**

**MUS 153, 353. APPLIED MUSIC PRINCIPAL. (2)** *Corequisite: MUS 155.* Principal lessons for music majors. **Course Fee**

**MUS 357, 457. APPLIED MUSIC MAJOR. (3)** *Corequisite: MUS 155.* Principal lessons for music majors. **Course Fee**

## NURS / NUR – NURSING SCHOOL OF NURSING

### ASSOCIATE OF SCIENCE IN 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)** *Prerequisite: Admission to the nursing program. Corequisite: NUR 106. Prerequisites or corequisites: NURS 104, PSY / PSYS 220, BIOL 131.* Introduces fundamental nursing concepts and principles utilizing basic human needs, developmental theory, nursing process, and evidence-based interventions to promote and maintain health for selected populations. **Course Fee**

**NUR 106. FUNDAMENTALS OF NURSING CLINICAL. (1)** *Prerequisite: Admission to the nursing program. Prerequisites or corequisites: NUR 104, 105, PSY / PSYS 220, BIOL 131.* 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 / PSYS 220, BIOL 131.* Concepts required to transition from the licensed practical nurse to the registered nurse role.

**NUR 155. MEDICAL-SURGICAL NURSING I. (6)** *Prerequisites: NUR 104, 105, 106, 150, BIOL 131, PSY / PSYS 220. Prerequisite or corequisite: BIOL 207.* Medical-surgical concepts utilizing basic human needs, developmental theory, nursing process, and evidence-based interventions to promote and maintain health for selected populations. **Course Fee**

**NUR 156. MEDICAL-SURGICAL NURSING I CLINICAL. (2.)** *Prerequisites: NUR 104, 105, 106, 150, BIOL 131, PSY / PSYS 220. Prerequisite or corequisite: NUR 155, BIOL 207.* Application of medical-surgical nursing concepts, principles, and skills.

**NUR 157. MEDICAL-SURGICAL NURSING I SKILLS LAB. (1)** *Prerequisites: NUR 104, 105, 106, 150, BIOL 131, PSY / PSYS 220. Prerequisites or corequisites: NUR 155, BIOL 207.* Application of medical-surgical nursing concepts, principles and skills. **Course Fee**

**NUR 165. MENTAL HEALTH NURSING. (3)** *Prerequisites: NUR 104, 105, 106, 150, BIOL 131, PSY / PSYS 220. Prerequisite or corequisite: BIOL 207.* Includes mental health nursing concepts utilizing basic human needs, developmental theory, nursing process and evidence-based interventions to promote and maintain health for selected populations.

**NUR 166. MENTAL HEALTH NURSING CLINICAL. (1)** Prerequisites: NUR 104, 105, 106 150, BIOL 131, PSY / PSYS 220. Prerequisite or corequisite: NUR 165, BIOL 207. Application of mental health nursing concepts, principles, and skills.

**NUR 208. MEDICAL-SURGICAL NURSING II. (5)** Prerequisites: NUR 155, 156, 157, 165, 166, BIOL 207. Prerequisites or corequisites: ENG 100. Expansion on previous medical-surgical concepts utilizing basic human needs, developmental theory, nursing process, and evidence-based interventions to promote and maintain health for selected populations. **Course Fee**

**NUR 209. MEDICAL-SURGICAL NURSING II CLINICAL. (3)** Prerequisites: NUR 155, 156, 157, 165, 166, BIOL 207. Prerequisites or corequisites: NUR 208, ENG 100. Application of medical-surgical nursing concepts, principles and skills.

**NUR 215. MATERNAL-NEWBORN NURSING. (2)** Prerequisites: NUR 155, 156, 157, 165, 166, BIOL 207. Prerequisites or corequisites: ENG 100. Includes maternal-newborn nursing concepts utilizing basic human needs, developmental theory, nursing process and evidence-based interventions, to promote and maintain health for selected populations.

**NUR 216. MATERNAL-NEWBORN NURSING CLINICAL. (1)** Prerequisites: NUR 155, 156, 157, 165, 166, BIOL 207. Prerequisites or corequisites: NUR 215, ENG 100. Application of maternal-newborn nursing concepts, principles and skills.

**NUR 254. PEDIATRIC NURSING. (2)** Prerequisites: NUR 208, 209, 215, 216. Prerequisites or corequisites: Quantitative Reasoning (QR) course, Arts and Humanities (AH) elective. Includes pediatric nursing concepts utilizing basic human needs, developmental theory, nursing process and evidence-based interventions to promote and maintain health for selected populations.

**NUR 255. MEDICAL SURGICAL NURSING III. (3)** Prerequisites: NUR 208, 209, 215, 216. Prerequisites or corequisites: Quantitative Reasoning (QR) course, Arts and Humanities (AH) Elective. Expansion on previous medical-surgical concepts utilizing basic human needs, developmental theory, nursing process, and evidence-based interventions to promote and maintain health for selected populations. **Course Fee**

**NUR 257. NURSING SEMINAR & PRACTICUM. (4)** Prerequisites: NUR 208, 209, 215, 216. Prerequisites or corequisites Quantitative Reasoning (QR) course, Arts and Humanities (AH) elective. Capstone clinical experience with exploration of issues and policies related to the profession of nursing.

#### **BACHELOR OF SCIENCE IN NURSING COURSES**

**NURS 102. INTRODUCTION TO PROFESSIONAL NURSING. (3)** Prerequisites: ENG 100. 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. **Colonnade E-SB | SB**

**NURS 317. SPECIAL TOPICS / INDEPENDENT STUDY. (1-3)** A variable credit course which permits the student to select and 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: Completion of BIOL 131 and BIOL 231 with a minimum grade of "C" and be enrolled with the designation of Pre-Nursing 586P. 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.

**NURS 329. CONCEPTS IN PHARMACOLOGY I. (2)** Prerequisites: NURS 333, 334, 335, 336, and 337 or permission of instructor. Corequisites: NURS 341, 342, 343, 344, 413. Explores introductory principles of pharmacology, drug prototypes used to treat alterations 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 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 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 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 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 AND DISEASE PREVENTION. (3)** Prerequisite: Admission to the nursing program. Corequisites: NURS 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 341. MEDICAL SURGICAL NURSING I. (3)** Prerequisites: NURS 333, 334, 335, 336 and 337; or permission of instructor. Corequisites: NURS 329, 342, 343, 344, 413. Basic medical surgical nursing concepts to provide holistic care to diverse individuals and families experiencing alterations in health.

**NURS 342. CLINICAL: MEDICAL SURGICAL NURSING I. (3)** Prerequisites: NURS 333, 334, 335, 336, and 337; or permission of instructor. Corequisites: NURS 329, 341, 343, 344, 413. 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. (3)** Prerequisites: NURS 333, 334, 335, 336, and 337; or permission of instructor. Corequisites: NURS 329, 341, 342, 344, 413. Integration of mental health concepts to provide care to clients experiencing alterations in mental health.

**NURS 344. CLINICAL MENTAL HEALTH NURSING. (1)** Prerequisites: NURS 333, 334, 335, 336, and 337; or permission of instructor. Corequisites: NURS 329, 341, 342, 343, 413. 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 333, 334, 335, 336, and 337 or permission of instructor. Corequisites: NURS 329, 341, 342, 343, 344. 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. (4)** 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**

**NURS 429. CONCEPTS IN PHARMACOLOGY II. (2)** Prerequisites: NURS 329, 341, 342, 343, 344, 413; or permission of instructor. Corequisites: NURS 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 329, 341, 342, 343, 344, and 413; or permission of instructor. Corequisites: NURS 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. (3)** Prerequisites: NURS 329, 341, 342, 343, 344, 413; or permission of instructor. Corequisites: NURS 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 329, 341, 342, 343, 344, 413; or permission of instructor. Corequisites: NURS 429, 432, 433, and 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 329, 341, 342, 343, 344, 413; or permission of instructor. Corequisites: NURS 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**

## COURSE DESCRIPTIONS

**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. (2)** 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. **Course Fee**

### **NURSING GENERAL ELECTIVE COURSES**

**NURS 317. SPECIAL TOPICS / INDEPENDENT STUDY. (1-3)** A variable credit course which permits the student to select and 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 338. TRANSCULTURAL NURSING: CONCEPTS AND APPLICATION. (3)** Prerequisites: NURS 324, 333, 334, 335, 336, and 337; or permission of instructor. Explores the meaning of health and illness for diverse populations. Explore transcultural issues related to organizational readiness, such as leadership, data collection and use, and workforce issues. Additional issues may include the environment of care, rights and responsibilities of the individual and patient, and family and community engagement.

**NURS 345. AGRICULTURAL HEALTH NURSING. (3)** Prerequisite: Completion of first semester pre-licensure BSN nursing program or permission of instructor. Explores issues influencing the health of agricultural workers with emphasis on the role of the nurse in recognizing and preventing agricultural illnesses and injuries along with strategies to promote the health of agricultural workers and their families.

**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: 21 hours of Foundations and Explorations Courses, or junior status. Selected holistic modes of healing will be explored. Focus will be on history, research findings, theoretical basis and legal implications. **Colonnade K-SC**

**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 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 Nursing)**

**NURS 300. CONCEPTS OF DISEASE PROCESSES. (3)** 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)** Development of physical assessment skills to determine health status of clients across the life span.

**NURS 315. CONCEPTS IN PHARMACOLOGY. (3)** 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. (3)** 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. (3)** Emphasizes concepts that enhance development of advanced professional practice and continued professional development. **Course Fee**

**NURS 339. CARE OF THE HIGH ACUITY PATIENT. (3)** Application and integration of advanced medical-surgical concepts. Emphasis on critical thinking and clinical judgment in the care of the high acuity patient.

**NURS 340. TEACHING AND HEALTH PROMOTION IN NURSING PRACTICE. (3)** 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)** Theoretical foundations of nursing management and leadership emphasizing human resource management, decision making, and motivational skills.

**NURS 408. PROFESSIONAL ISSUES. (3)** Prerequisites or corequisites: RN to BSN 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)** 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)** Corequisite: NURS 431. 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)** 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 SCHOOL 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 permission of program advisor. Includes technical, design, and typography concepts used in Advanced Desktop Publishing.

**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)

### **PCAL – POTTER COLLEGE OF ARTS & LETTERS**

**PCAL 175. POTTER COLLEGE OF ARTS & LETTERS UNIVERSITY EXPERIENCE. (3)** For first year or transfer students with fewer than 6 hours of credit in declared major. Transition to the university experience geared towards first year students. Topics include academic skills, critical thinking skills, library education, campus resources, and personal development. Special emphasis on careers and degree programs related to the fields within Potter College of Arts & Letters. Course is restricted to those with majors, including exploratory, within Potter College.

### **PE – PHYSICAL EDUCATION SCHOOL OF KINESIOLOGY, RECREATION AND SPORT**

**PE 100. FUNDAMENTALS OF PHYSICAL ACTIVITY. (3)** A study of the basic knowledge, understandings, and values of physical activity. Laboratory experiences are required.

**PE 101. 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)

**PE 102 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.

**PE 103. 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. 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.

**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 kinesiology; aspects of physical education, exercise science, and sport will be covered. 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)** *Prerequisites: BIOL 131.* 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.

**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 (GRADES 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 323. ADAPTIVE PHYSICAL EDUCATION (GRADES 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. MEASUREMENT AND EVALUATION IN KINESIOLOGY. (3)** *Prerequisite: Second semester junior standing in the physical education major.* A study of measurement tools and evaluation procedures used in the fields associated with kinesiology, including physical education, exercise science, and biomechanics.

**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 (GRADES 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 (GRADES 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 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 adaptation of the principles and practices of physical education programs for the teaching of handicapped children.

**PE 456. INDIVIDUAL ADVANCED STUDIES IN KINESIOLOGY. (3)** Specific and detailed analysis of practical problem areas in Kinesiology. Equivalent to EXS 456.

**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.

## COURSE DESCRIPTIONS

**PE 497. PRINCIPLES OF COACHING. (3)** *Prerequisites:* PE 211, 212, 222, 310, 311, 312, SPM 200 or permission of instructor. Overview of concepts essential in preparation of sport coaches. Includes sport pedagogy, coaching philosophy, motivation, team dynamics, managing and communicating effectively, and improving player performance. Restricted to athletic coaching minors only.

### PEMS— PHYSICAL EDUCATION MOVEMENT STUDIES SCHOOL OF KINESIOLOGY, RECREATION, AND SPORT

**PEMS 326. PHYSICAL EDUCATION MOVEMENT STUDIES PRACTICUM I. (2)** *Prerequisite:* Junior standing or permission of instructor. Field-based experiences in appropriate early / middle childhood non-school settings emphasizing the abilities to understand, recognize, analyze, and demonstrate a range of physical activity teaching skills. Students are responsible for their own transportation to and from practicum sites.

**PEMS 426. PHYSICAL EDUCATION MOVEMENT STUDIES PRACTICUM II. (2)** *Prerequisites:* PEMS 326 and either senior standing or permission of instructor. Field-based experiences in appropriate adolescent, young adult / adult non-school settings emphasizing the abilities to understand, recognize, analyze, and demonstrate a range of physical activity teaching skills. Students are responsible for their own transportation to and from practicum sites.

### PERF – PERFORMING ARTS DEPARTMENT OF THEATRE AND DANCE

**PERF 101. ACTING. (3)** Improvisation, theatre games, and introductory scene and / or monologue work intended to develop fundamental performance and ensemble collaboration skills.

**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)

**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.

**PERF 120. REHEARSAL AND PRODUCTION. (1)** An introductory, experiential learning course providing an overview of theatre and dance production safety procedures and rehearsal etiquette, as well as practical experience in all areas of theatrical production.

**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 / kinesthetic abilities. Repeatable once for credit.

**PERF 220. PRODUCTION LAB I. (0.05-1)** An experiential learning course designed to provide practical experience in theatrical production. Repeatable for a total of 2 credits.

**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. PRODUCTION LAB II. (0.05-1)** *Prerequisite:* PERF 220 or permission of instructor. An experiential learning course designed to provide practical experience in theatrical production, continuation of PERF 220. Repeatable for a total of 2 credits.

**PERF 321. PRODUCTION LAB III. (0.05-1)** An experiential learning course designed to provide practical experience in theatrical production, continuation of PERF 320. Repeatable for a total of 2 credit hours.

**PERF 340. PERFORMANCE LAB I. (0.05-1)** *Prerequisite:* Permission of Instructor. An experiential learning course designed to provide practical experience in theatrical performance under actual production conditions. Repeatable for a total of 2 credits.

**PERF 341. PERFORMANCE LAB II. (0.05-1)** *Prerequisite:* PERF 340 or permission of instructor. An experiential learning course designed to provide practical experience in theatrical performance under actual production conditions. Repeatable for a total of 2 credits.

**PERF 350. VOICE AND DICTION FOR THE THEATRE. (1)** *Prerequisite:* THEA 300 or permission of instructor. Study and practice of proper vocal production and standard American diction for theatrical applications.

**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 362. THEATRE IN DIVERSION. (3)** *Prerequisites:* SOCL 100 and SOCL 302 or THEA 252 and permission of instructor. Course focusing on techniques for working with at-risk youth. Will provide students with a chance to teach drama skills and develop a performance showcase with teenagers in the juvenile justice system, and to evaluate the effectiveness of these interventions in reducing delinquency. Repeatable one time for a total of 6 credits.

**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. PRODUCTION LAB IV (0.05-1)** An experiential learning course designed to provide practical experience in theatrical production, continuation of PERF 321. Repeatable for a total of 2 credit hours.

**PERF 421. PRODUCTION LAB V. (0.05-1)** An experiential learning course designed to provide practical experience in theatrical production, continuation of PERF 420. Repeatable for a total of 2 credits.

**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 430. PRODUCTION LAB VI. (0.05-1)** *Prerequisites:* PERF 421 or permission of instructor. An experiential learning course designed to provide upper level practical experience in targeted areas of theatrical production under actual production conditions. Repeatable for a total of 2 credits.

**PERF 431. PRODUCTION LAB VII. (1)** *Prerequisite:* PERF 430 or permission of instructor. An experiential learning course designed to provide upper level practical experience in targeted areas of theatrical production under actual production conditions. Repeatable for a total of 2 credits.

**PERF 440. PERFORMANCE LAB III. (0.05-1)** An experiential learning course designed to provide practical experience in theatrical performance under actual production conditions. Repeatable for a total of 2 credits.

**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. (1)** *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 451. CAREER SEMINAR WORKSHOP. (2)** *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.

### PETE— PHYSICAL EDUCATION TEACHER EDUCATION SCHOOL OF KINESIOLOGY, RECREATION, AND SPORT

**PETE 322. FIELD EXPERIENCE IN PHYSICAL EDUCATION I. (2)** Field-based experience in elementary school physical education emphasizing the abilities to understand, recognize, analyze, and demonstrate a range of teaching skills in an elementary school context.

**PETE 415. FIELD EXPERIENCE IN PHYSICAL EDUCATION II. (2)** *Prerequisite:* Students in the PETE concentration must meet all requirements for admission into the teacher education program and be admitted into teacher education prior to registering for PETE 415. Field-based experience in secondary physical education emphasizing the abilities to understand, recognize, analyze, and demonstrate a range of teaching skills in a secondary school context.

**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. **Colonnade E-SB | SB**

**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.

**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 ENV 280.

**PH 365. HUMAN SEXUALITY. (3)** *Prerequisite:* 21 hours of Foundations and Explorations courses, or junior status. 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. **Colonnade K-SC**

**PH 381. COMMUNITY HEALTH. (3)** *Prerequisite:* PH 100 or PH 261 or 21 hours of Foundations and Explorations courses or permission of instructor. 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)** *Prerequisite:* 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)** *Prerequisite:* MATH 109 or MATH 115 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:* 3 hours of CHEM and 3 hours of 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, HMD 211, 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:* Sophomore standing or instructor permission. 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 410. GLOBAL PERSPECTIVES ON POPULATION HEALTH. (3)** *Prerequisite:* Complete 21 hours of Foundations & Explorations coursework or have junior status. Population health focuses on the health and well-being of entire populations.

Populations may be geographically defined, such as neighborhoods, states, or countries, or may be based on groups of individuals who share common characteristics such as age, gender, race-ethnicity, disease status, employee group membership, or socioeconomic status. With roots in epidemiology, public health, and demography, a key component of population health is the focus on the social determinants of health and "upstream" collaborative interventions to improve population health and variance, identify and reduce health disparities, and reduce healthcare costs. **Colonnade K-LG**

**PH 443. HEALTH AND AGING. (3)** *Prerequisites:* Sophomore standing or permission of instructor. 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)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. 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. **Colonnade K-SC**

**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.

**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 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.

**H 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 467. DRUG ABUSE EDUCATION. (3)** *Prerequisite:* Sophomore standing or permission of instructor. 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:* Sophomore standing 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 472. ILLICIT DRUG POLICY IN THE US. (3)** *Prerequisite: PH 100 or PH 165 or permission of instructor.* Examination of the illicit drug policy in the United States and its intended and unintended outcomes. Topics include the history of illicit drug policy, current trends in drug policy enforcement, drug use and abuse, and proposed alternative policies.

**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 – PHILOSOPHY  
DEPARTMENT OF PHILOSOPHY AND RELIGION**

**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? *Colonnade E-AH | AH*

**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? *Colonnade E-AH | AH*

**PHIL 103. ENDURING QUESTIONS: THE COMMITTED LIFE. (3)** The philosophical study of individual and collective commitment to ideals and values in pluralistic society. *Colonnade E-AH | AH*

**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. Equivalent to RELS 202.

**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 208. PUBLIC PHILOSOPHY: REASON, ACTION, VIOLENCE. (3)** An exploration of how public spaces (squares, malls, streets, parks, and sidewalks) shape citizenship by enabling and disabling public discourse and political participation. Students will investigate and evaluate demands for justice and fairness that have been made in public spaces.

**PHIL 211 WHY ARE BAD PEOPLE BAD? (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* A study of enduring questions about the darker side of human nature—such as whether people are born bad and whether people are responsible for vice and evil—providing a philosophical analysis of a wide range of examples from multiple disciplinary perspectives. *Colonnade K-SC*

**PHIL 212. PHILOSOPHY AND GENDER THEORY. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Introductory study of philosophical works as they relate to gender theory, queer theory, and feminism. *Colonnade K-SC*

**PHIL 214. LOGIC, ARGUMENT, & PRACTICAL REASONING. (3)** Focuses on areas of logic that provide a basis for philosophical reasoning and analysis, including types of arguments, logical properties, fallacies, Venn diagrams, truth tables, and categorical, sentential, and quantified logics.

**PHIL 215. SYMBOLIC 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 PHIL215 may go on to take PHIL 415, with the permission of the instructor of PHIL 415. *Colonnade F-QR | QR*

**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 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.

**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.

**PHIL 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 RELS 323.

**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 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 332. PHILOSOPHY OF MIND: MINDS AND MACHINES. (3)** *Prerequisite: One philosophy course or consent of instructor and 21 hours of Foundations and Explorations Courses, or junior status.* A study of the nature of mind, cognitive states, and consciousness. Topics may include the nature of the mental system, mind-brain identity, computer consciousness, and visual system's role in decision-making and intentionality. *Colonnade K-SY*

**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 334. PHILOSOPHY OF LANGUAGE. (3)** *Prerequisite: One course in philosophy or permission of instructor.* Examines major topics in the philosophy of language, including the language-world-thought relationship, linguistic meaning, linguistic structure, and communication.

**PHIL 341. PLATO AND ARISTOTLE. (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. SKEPTICS, STOICS, AND EPICUREANS. (3)** *Prerequisite: One course in philosophy or permission of instructor.* A selective study to assess and compare the views of Stoics, Skeptics, Epicureans, and others on issues that include reality, knowledge, natural law, well-being, and soul.

**PHIL 343. MEDIEVAL PHILOSOPHY. (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 406. EXISTENTIALISM. (3)** *Prerequisite: One course in philosophy or permission of instructor.* A study of central thinkers in the existential movement and its representative themes of individualism, subjectivity, passion, freedom, absurdity, and responsibility.

**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 427. PHILOSOPHY OF LAW. (3)** *Prerequisite: One philosophy course or permission of instructor.* A study of theories on the nature and origin of law, basic legal concepts (obligation, right, equality, liberty, justice), legal moralism, church and state, civil disobedience, and other topics.

**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 440. READINGS IN ANCIENT OR MEDIEVAL PHILOSOPHY. (3)** *Prerequisite: One philosophy course or instructor permission.* Advanced study of a major thinker or movement in ancient or medieval philosophy.

**PHIL 450. READINGS IN MODERN OR CONTEMPORARY PHILOSOPHY. (3)** *Prerequisite: One philosophy course or instructor permission.* Advanced study of a major thinker or movement in modern or contemporary philosophy.

**PHIL 496. SENIOR SEMINAR. (3)** *Prerequisites: 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

##### COLONNADE COURSES

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. **Colonnade E-NS | NS**

**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. **Colonnade E-NS (SL) | NS | SL**

**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. **Course Fee | Colonnade E-NS (SL) | NS | SL**

**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. **Colonnade E-NS (SL) | NS | SL**

##### SCIENCE AND MATH MAJORS AND MINORS

**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. **Colonnade E-NS | NS**

**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. **Course Fee | Colonnade E-SL | SL**

**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). **Colonnade E-NS (SL) | NS | SL**

**PHYS 202. COLLEGE PHYSICS II. (4)** *Prerequisite: PHYS 201. Corequisite: 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).

**PHYS 215. SEMINAR FOR PHYSICS LEARNING ASSISTANTS. (1)** *Prerequisites: A college level physics course and acceptance to serve as a learning assistant or permission of instructor.* Introduces students to basic theory and practical skills for assisting instructors as learning assistants in active-engagement physics courses.

**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.

## COURSE DESCRIPTIONS

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**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.

**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**

**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. Corequisites: 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. **Colonnade E-NS | NS**

**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 | Colonnade E-SL | SL**

**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 295. INTRODUCTION TO RESEARCH METHODOLOGY. (1)** *Prerequisite: Ogden Research Scholar, or 3.2 grade point average at the end of freshman year, or Ogden College 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, ENGR 295, GEOL 295, and MATH 295.

**PHYS 299. RESEARCH EXPERIENCE. (1-3)** *Prerequisites: MATH 117 or equivalent; and PHYS 180 or PHYS 201 or PHYS 231 or PHYS 255; and permission of the instructor.* Individual or group research project carried out under direct faculty supervision. A faculty approved public presentation is required. Course may be repeated for a maximum of 3 hours.

**PHYS 332. INTRODUCTION TO PHYSICS AND BIOPHYSICS II. (3)** *Prerequisite: PHYS 231. Corequisite: 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 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.

**PHYS 312. LABORATORY PRACTICE AND PROCEDURE. (1)** 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 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.

### **PHYSICS MAJORS AND MINORS**

**PHYS 301. ELECTRICAL MEASUREMENTS LABORATORY. (1)** *Prerequisites: PHYS 265 and 266.* Laboratory experiments in fundamental techniques of electrical measurements. **Course Fee**

**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 321.* Use of computers to solve physics problems, model physical systems, and analyze data. Topics include: simulating 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 or permission of the 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. **Course Fee**

**PHYS 321. INTRODUCTORY MODERN PHYSICS II. (3)** *Prerequisites: PHYS 180 and PHYS 265. Prerequisite or corequisite: CHEM 120 and MATH 237.* Study of the breakdown of classical physics at velocities close to the speed of light and on atomic scales. Topics include relativistic kinematics and dynamics, wave/particle duality, the Schrodinger equation, square wells, harmonic oscillators, the hydrogen atom, many-electron atoms, statistical distribution laws, superconductivity and superconductivity, the band theory of solids, nuclear structure and 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 340. CIRCUIT THEORY AND ELECTRONICS. (3)** *Prerequisites: PHYS 265, 301; MATH 137. Corequisite: 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 corequisites: 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)** *Prerequisites: 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)** *Corequisite: 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 425. PHYSICS OF MATERIALS SCIENCE. (3)** *Prerequisites: PHYS 321, MATH 237.* *Corequisites: MATH 331.* This course investigates the fundamental quantum physics of bonding, energetics and structure that underpins the foundation of the physics of materials. The physical properties of nanomaterials and their corresponding applications will be explored using the principles of quantum physics. Materials examined include engineered metal alloys, electronic and magnetic materials, ionic and network solids, ceramics, polymers, and biomaterials at all length scales.

**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.* *Corequisite: 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)** 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. (May be repeated with department approval.)

**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.

#### BIOPHYSICS MINORS

**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 265.* An introduction to the fundamental and quantitative principles underlying major medical imaging techniques.

**PHYS 359. CLINICAL OPTICS. (4)** *Prerequisites: PHYS 332, 233.* The optics of the human eye and of corrective lenses for common eye defects.

**PHYS 379. NANOTECHNOLOGY IN BIOPHYSICS AND MEDICINE. (4)** *Prerequisites: PHYS 332, 233 or PHYS 265, 266.* The physics of nanostructures and their bio-medical applications.

**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.

#### PJ – PHOTOJOURNALISM

##### SCHOOL OF JOURNALISM & BROADCASTING

**PJ 131. INTRODUCTION TO DIGITAL PHOTOGRAPHY. (3)** Introduces non-photojournalism 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. Lecture and Lab. **Course Fee**

**PJ 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**

**PJ 233. INTERMEDIATE PHOTOJOURNALISM. (3)** *Prerequisite: PJ 231.* Building on the skills and theories from Introduction to Photojournalism, students will produce documentary images that tell complex stories under various practical settings of journalistic inquiry, working on tighter deadlines and towards a higher level of expected results. Students will advance their knowledge on complicated mechanical camera technique and increase their personal photographic vision and portfolio development. Lecture and Lab. **Course Fee**

**PJ 261. INTRODUCTION TO MULTIMEDIA. (3)** *Prerequisites: PJ 231 (Photojournalism majors), PJ 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**

**PJ 330. INTRODUCTION TO SHORT FROM DOCUMENTARY. (3)** *Prerequisite: PJ 233.* Fundamentals of documentary storytelling through the use of still photography, audio, and video. Analysis and application of the principles of video editing techniques used in the photojournalism profession. Projects require transportation, a DSLR camera that is video capable, audio recording equipment, and an external hard drive. Required off-campus travel. Lecture and lab. **Course Fee**

**PJ 333. LIGHTING TECHNOLOGIES. (3)** *Prerequisites: PJ 233 or PJ 261* by permission of instructor. 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**

**PJ 334. PICTURE STORIES. (3)** *Prerequisite: PJ 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**

**PJ 336. PICTURE EDITING. (3)** *Prerequisite: PJ 233 (Photojournalism majors); PJ 131 (Non-Photojournalism Majors in the School of Journalism & Broadcasting); or permission of 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**

**PJ 390. PHOTOGRAPHY HISTORY/CULTURE. (3)** Students will gain an understanding of the impact of the photographic image in different media, how photography has played a significant role in recording history since the 19<sup>th</sup> Century, and how the evolution of visual media has changed our perception of the world.

## COURSE DESCRIPTIONS

**PJ 432. PHOTOJOURNALISM PRACTICUM. (3)** *Prerequisite:* PJ 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**

**PJ 433. ADVANCED SHORT FORM DOCUMENTARY. (3)** *Prerequisite:* PJ 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**

**PJ 436. PHOTOJOURNALISM PROJECTS. (3)** *Prerequisite:* PJ 362. 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**

**PJ 439. ADVANCED STUDIO LIGHTING TECHNIQUES. (3)** *Prerequisite:* PJ 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**

### PLS – PARALEGAL STUDIES DEPARTMENT OF POLITICAL SCIENCE

**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 194C. LEGAL TECHNOLOGY. (3)** Survey of computer software programs, hardware and other technology relevant to the modern law practice.

**PLS 200C. LEGAL ETHICS. (3)** *Prerequisite or corequisite:* PLS 190C. Study, analysis and application of codes of professional responsibility and standards of conduct governing the practice of law in state and federal courts.

**PLS 250. LEGAL RESEARCH AND WRITING I. (3)** *Prerequisite:* PLS 190C. The sources and techniques of performing legal research using primary and secondary authorities in a law library and online and drafting legal documents in appropriate format with correct citations.

**PLS 280C. CONTRACT LAW AND THE PARALEGAL. (3)** *Prerequisite:* PLS 393. Academic and practical instruction in the law of contracts, with a focus on contract formation, performance and breach.

**PLS 282C. TORT LAW AND THE PARALEGAL. (3)** *Prerequisite:* PLS 393. 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 393. 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 250. 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.

**PLS 294C. ADMINISTRATIVE PRACTICE AND PROCEDURES. (3)** *Prerequisite:* PLS 250. 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 296C. FAMILY LAW. (3)** *Prerequisite or corequisite:* PLS 250. 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 324. WOMEN AND THE LAW. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, of junior status. An examination of treatment of women in, and by, the U.S. legal profession. Survey of landmark cases that have impact specifically on women's legal rights. **Colonnade K-SC**

**PLS 350C. EVIDENCE. (3)** Study and application of rules governing discovery and admission of evidence in state and federal courts and administrative hearings.

**PLS 360C. DEBTOR CREDITOR RELATIONS. (3)** Study and analysis of the types of debtor / creditor relationships, including how the relationships are developed and maintained and what legal remedies exist when the relationships deteriorate.

**PLS 375. COMPARATIVE LEGAL SYSTEMS. (3)** Comparative study and analysis of U.S. legal system and those of select foreign countries. Students will be responsible for fees associated with off campus travel as assigned.

**PLS 381. ALTERNATIVE DISPUTE RESOLUTION METHODS AND PRACTICES. (3)** *Prerequisite:* PLS 393. Examination and application of various methods of alternative dispute resolution utilized in legal disputes.

**PLS 392. CORPORATE LAW. (3)** *Prerequisite:* PLS 250. Examination and analysis of available business forms including formation requirements, tax and liability considerations, and operation and management concerns.

**PLS 393. CIVIL PROCEDURE. (3)** *Prerequisite:* PLS 250. Examination and application of federal and state rules of procedure governing a civil lawsuit from initial client contact through discovery, trial, and appeal. Coursework will focus on the role and responsibilities of the paralegal in preparing court documents, investigation, client and witness contact, discovery, trial preparation and post-trial proceedings. A mock trial will be conducted.

**PLS 395. ESTATE PLANNING AND ADMINISTRATION. (3)** *Prerequisite:* PLS 250. Estate planning and probate practice under Kentucky statutes, including initial steps, asset management and distribution, tax issues, wills and trusts, and drafting related documents required for planning and probate.

**PLS 400. SPECIAL TOPICS FOR PARALEGALS. (1-6)** This course is an examination of historical and contemporary special topics in paralegal studies. Students are responsible for arranging their own transportation for off campus travel as assigned. Repeatable for credit.

**PLS 450. LEGAL RESEARCH AND WRITING II. (3)** *Prerequisites:* PLS 250 and PLS 393. The sources and techniques of performing online, independent legal research, critical analysis of fact and law, legal argument development and drafting advanced legal documents.

**PLS 499. INTERNSHIP IN PARALEGAL STUDIES. (3)** *Prerequisites:* PLS 250, 393, and 450 (PLS 450 may be a prerequisite or corequisite). Program advisor approval and advanced registration required. Students must document a minimum number of hours of practical experience in an external legal setting under an attorney's supervision. (Grading: Pass / Fail)

### POP – POPULAR CULTURE STUDIES DEPARTMENT OF COMMUNICATION

**POP 201. INTRODUCTION TO POPULAR CULTURE STUDIES. (3)** *Prerequisite:* ENG 100 or the equivalent or permission of instructor. An interdisciplinary 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 producers, audiences, and meanings of the culture of everyday life in a variety of historical and cultural contexts. **Colonnade E-AH | AH**

**POP 389. INDEPENDENT STUDIES IN POPULAR CULTURE STUDIES. (1-3)** *Prerequisites:* Completion of POP 201, Junior or Senior standing, and permission of instructor. Supervised individual study in a topic or area of Popular Culture Studies that is of particular interest to the student. Requires instructor permission.

**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. (1)** *Prerequisites:* POP 201 and at least 21 hours in major and senior standing, or permission of instructor. A capstone course designed for popular culture studies majors. 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.

### PR – PUBLIC RELATIONS DEPARTMENT OF COMMUNICATION

**PR 255. FUNDAMENTALS OF PUBLIC RELATIONS. (3)** *Prerequisite:* Sophomore standing. 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

**PR 350. LEGAL AND ETHICAL FOUNDATIONS OF STRATEGIC COMMUNICATION. (3)** Study of the interconnection legal and ethical responsibilities relevant to those in public relations, advertising, and related communication contexts.

**PR 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.

**PR 356. DIGITAL TACTICS IN PUBLIC RELATIONS. (3)** *Prerequisite: PR 255 and JOUR 202 with a grade of "C" or better, or permission of instructor.* Examines the strategic use of digital and social media platforms and tools for public relations purposes with an emphasis on hands-on experience and skills. Lecture and lab. **Course Fee**

**PR 358. PUBLIC RELATIONS WRITING AND PRODUCTION. (3)** *Prerequisites: PR 255 and JOUR 202 with a grade of "C" or better, or permission of instructor.* 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**

**PR 400. SPECIAL TOPICS IN PUBLIC RELATIONS. (3)** *Prerequisite: Sophomore standing and COMM 200 or ENG 300 or instructor permission.* Various public relations topics not covered specifically in the curriculum. Repeatable once for a total of 6 hours.

**PR 415. STUDY ABROAD IN PUBLIC RELATIONS. (3)** Public relations and culture in international and cross-cultural locations. Repeatable once for a total of 6 hours.

**PR 454. PUBLIC RELATIONS STRATEGY AND PLANNING. (3)** *Prerequisites: AD 300 or COMM 300 or PS 301 or SOCL 302, and PR 356 or PR 358, all with a grade of "C" or better, or instructor permission.* 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**

**PR 456. PUBLIC RELATIONS MANAGEMENT. (3)** *Prerequisites: PR 454 with a grade of "C" or better or instructor permission.* 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**

**PR 489. PR INTERNSHIP OR PRACTICUM. (3)** *Prerequisites: Permission of instructor. For Public Relations majors only.* Professional-quality experience outside or inside the University for a fixed period of time. Follow-up with consist student reports and employer evaluation. Open only to Public Relations majors. Course will be repeatable once for credit (only 3 hours will count for credit toward major).

**PR 495. INDEPENDENT STUDY IN PUBLIC RELATIONS. (1-6)** *Prerequisite: COMM 200 with a grade of "C" or better, and permission of instructor.* Develops directed research in Public Relations. Students must submit a written petition for faculty approval of the study in the semester prior to enrolling.

**PS— POLITICAL SCIENCE**  
**DEPARTMENT OF POLITICAL SCIENCE (PS)**

**GENERAL COURSES**

**PS 201. CONCEPTS OF POLITICAL SCIENCE. (3)** 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)** *Prerequisite: 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: 3 credit hours of a Political Science course or permission of the instructor.* 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 330. INTRODUCTION TO POLITICAL THEORY. (3)** *Prerequisite: 3 hours of Political Science courses or permission of the instructor.* A survey of the great thinkers and issues of politics that have shaped western civilization.

**PS 331. POLITICS OUTSIDE THE BOX. (3)** 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)** 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.* 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)** Examination of specialized topics in political theory not covered in regular departmental offerings.

**PS 435. AMERICAN POLITICAL THOUGHT. (3)** *Prerequisite: 3 hours of Political Science courses 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. (3)** *Prerequisite: Senior standing.* Integrates concepts and approaches learned during study of government. Engages students and faculty in sustained consideration of significant political issues / questions.

**AMERICAN GOVERNMENT AND POLITICS**

**PS 110. AMERICAN NATIONAL GOVERNMENT. (3)** The essentials of the political system and processes, particularly at the national level, in the United States. **Colonnade E-SB | SB**

**PS 304. STATE GOVERNMENT. (3)** *Prerequisites: 21 hours of Foundations and Explorations Courses, or junior status.* Political features of the American states and their governments. Explores similarities and differences among the states' constitutions and key governmental institutions. **Colonnade K-SY**

**PS 310. THE AMERICAN PRESIDENCY. (3)** 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)** 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: 21 hours of Foundations and Explorations Courses, or junior status.* 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. Equivalent to HIST 320. **Colonnade K-SC**

**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)** Explores the role that political parties and interest groups play in American politics.

**PS 377. POLITICS OF THE AMERICAN SOUTH. (3)** Examination of politics in the American South from the pre-Civil War era to the present.

## COURSE DESCRIPTIONS

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**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 311. PUBLIC POLICY. (3)** *Prerequisites: 21 hours of Foundations and Explorations Courses, or junior status.* Examines how issues get on the government agenda; how policy decisions are made; who implements policy and how well  
**Colonnade K-SY**

**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 340. PRINCIPLES OF PUBLIC ADMINISTRATION. (3)** An exploration of theoretical and practical issues related to the administration of public programs, policies and organizations.

**PS 480. SELECTED TOPICS IN PUBLIC POLICY. (3)** *Prerequisite: 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. (Grading: Pass / Fail)

### **PUBLIC LAW**

**PS 220. JUDICIAL PROCESS. (3)** *Prerequisites: 21 hours of Foundations and Explorations Courses, or junior status.* An introduction to the American legal system, the process of legal reasoning and legal resolution of value conflicts.  
**Colonnade K-SY**

**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)** 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)** Study and analysis of leading constitutional decisions and other materials concerning individual liberties in the U.S.

**PS 328. CRIMINAL JUSTICE PROCEDURES. (3)** A study of constitutional criminal procedure, principally under the Fourth, Fifth, Sixth, Eighth, Ninth, and Fourteenth Amendments to the U.S. Constitution.

**PS 420. SELECTED TOPICS IN PUBLIC LAW. (3)** *Prerequisite: PS 110 or permission of instructor.* Course provides students with the opportunity to analyze important legal questions and current issues related to the field of public law. May be repeated once for credit.

**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)** 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)** 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)** 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)** 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.  
**Colonnade E-SB | SB**

**PS 350. POLITICAL TERRORISM. (3)** *Prerequisite: 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)** *Prerequisites: 21 hours of Foundations and Explorations Courses, or junior status.* 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. **Colonnade K-LG**

**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.

**PS 450. SELECTED TOPICS IN INTERNATIONAL RELATIONS. (3)** 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. LATIN AMERICAN SOCIETY: PAST AND PRESENT. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* This course is a broad interdisciplinary introduction to the study of Latin America, emphasizing its regions, peoples and cultures. Equivalent to GEOG 200, HIST 200, and SPAN 200.  
**Colonnade K-SC**

**PS 260. INTRODUCTION TO COMPARATIVE POLITICS. (3)** 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. **Colonnade E-SB | SB**

**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)** 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)** 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)**  
*Prerequisites: 21 hours of Foundations and Explorations Courses, or junior status.* 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. **Colonnade K-LG**

**PS 366. GOVERNMENT AND POLITICS IN EAST ASIA. (3)** 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.

**PS 367. GOVERNMENT AND POLITICS OF RUSSIA AND EASTERN EUROPE. (3)** 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.

**PS 369. CENTRAL EUROPEAN POLITICS. (3)** A comparative analysis of the political culture, institutions and processes of Central European states and an examination of the impact of religion, empire and ideology on the political development of that region.

**PS 460. SELECTED TOPICS IN COMPARATIVE POLITICS. (3)** 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- PSYCHOLOGY  
DEPARTMENT OF PSYCHOLOGY (PSY)**

**PSY 100. 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. Equivalent to PSYS 100. **Colonnade E-SB | SB**

**PSY 175. UNIVERSITY EXPERIENCE. (3)** *Special Requirements: For beginning college freshmen 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 210. RESEARCH METHODS IN PSYCHOLOGY. (3)** *Prerequisites: PSY 100 with a grade of "C" or higher. Corequisite: PSY or PSYS 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. Equivalent to PSYS 210.

**PSY 211. RESEARCH METHODS IN PSYCHOLOGY LABORATORY. (1)**  
*Prerequisites: 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. Equivalent to PSYS 211.

**PSY 220 INTRODUCTION TO LIFESPAN 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. Equivalent to PSYS 220. **Colonnade E-SB | SB**

**PSY 250. 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.

**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 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 psychology major.

**PSY 310. EDUCATIONAL PSYCHOLOGY: DEVELOPMENT AND LEARNING. (3)**  
*Prerequisite: PSY 100 or PSY 220 and one of the following: EDU 250, MGE 275, AGED 250, SMED 101, SMED 301, IECE 321, AMS 329, or permission of instructor.* 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 313. STATISTICS IN PSYCHOLOGY. (3)** *Prerequisites: PSY 210 and 211 with a grade of "C" or better.* Methods of organizing, describing, and analyzing psychological data. Equivalent to PSYS 313.

**PSY 331. PSYCHOLOGY OF LEARNING. (3)** *Prerequisites: PSY 210 and PSY 211 with a grade of "C" or better, and junior standing or permission of 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 339. 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 340. SPORT PSYCHOLOGY. (3)** *Prerequisite: PSY 100.* Theory, topics, and applications within the field of sport and exercise psychology.

**PSY 346. FOUNDATIONS OF CLINICAL AND COMMUNITY BEHAVIORAL HEALTH. (3)** *Prerequisite: Declared minor in Clinical and Community Behavioral Health.* Survey of basic knowledge, skills, and values appropriate for clinical and behavioral health professionals, and the agencies, roles and services provided. Field trips to agency sites will be required. Students are responsible for arranging their own transportation.

**PSY 350. SOCIAL PSYCHOLOGY. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* 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, prejudice, and persuasion. Equivalent to PSYS 350. **Colonnade K-SC**

**PSY 355. ISSUES IN CROSS-CULTURAL PSYCHOLOGY. (3)** *Prerequisites: 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.

## COURSE DESCRIPTIONS

**PSY 371. THE PSYCHOLOGY OF SALES BEHAVIOR. (3)** 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; approval of the department and a 2.5 GPA in psychology. 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 3 hours credit at one time. Only three hours will count toward the psychology major or minor. Students are responsible for arranging their own transportation to designated or assigned sites.

**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 422. ADOLESCENT PSYCHOLOGY. (3)** *Prerequisites: PSY 100 or FACS 191 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. Equivalent to FACS 422.

**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 436. APPLIED COGNITIVE PSYCHOLOGY. (3)** *Prerequisite PSY/PSYS 210 and PSY/PSYS 211 or permission of the instructor.* This course will focus on the application of empirical cognitive findings to real-world memory tasks, reasoning, and problem-solving.

**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. Equivalent to PSYS 440.

**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 445. INTRODUCTION TO CLINICAL AND SCHOOL PSYCHOLOGY (3)** *Prerequisite: Junior or senior standing.* Survey of theories, models, and techniques in clinical and school psychology. Includes emphasis on professional ethics for psychologists.

**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 481. HISTORY OF PSYCHOLOGY. (3)** *Prerequisites: PSY 100 / PSYS 100 and junior standing or permission of instructor.* Overview of major historical developments in psychology and related scientific disciplines, such as medicine, neurophysiology, and physics. Emphasizes developments over the past 500 years. History of the scientific study of human / animal behavior, as well as cognitive, perceptual, and mental functioning. Equivalent to PSYS 481.

**PSY 490. RESEARCH, READINGS OR SPECIAL PROJECTS IN PSYCHOLOGY. (1-3)** *Prerequisites: PSY 100 / PSYS 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; up to six hours can be counted toward the major.

**PSY 499. SENIOR SEMINAR IN PSYCHOLOGY. (3)** *Prerequisites: 12 hours in psychology, including PSY 100 / PSYS 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. Equivalent to PSYS 499.

### PSYS – PSYCHOLOGICAL SCIENCES DEPARTMENT OF PSYCHOLOGICAL SCIENCES

**PSYS 100. 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. Equivalent to PSY 100. **Colonnade E-SB | SB**

**PSYS 160. INTRODUCTION TO BIOPSYCHOLOGY. (3)** An introductory class emphasizing the contributions of molecular, cellular, physiological, and evolutionary biology to the scientific understanding of psychological processes. Topics include the brain and nervous system, sensation and perception, hormones and behavior, and the interaction of genes and environment. **Colonnade E-NS | NS**

**PSYS 161. INTRODUCTION TO BIOPSYCHOLOGY LABORATORY. (1)** *Prerequisite/corequisite: PSYS 160.* A laboratory class that accompanies an introductory class emphasizing the contributions of molecular, cellular, physiological, and evolutionary biology to the scientific understanding of psychological processes. This class provides hands-on experience in a cross section of techniques used in this area of science. **Colonnade E-SL**

**PSYS 210. RESEARCH METHODS IN PSYCHOLOGY. (3)** *Prerequisite: PSYS or PSY 100 with a grade of "C" or higher. Corequisite: PSY or PSYS 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. Equivalent to PSY 210.

**PSYS 211. RESEARCH METHODS IN PSYCHOLOGY LABORATORY. (1)** *Prerequisites: PSYS or PSY 100 with a C or better. Corequisite: PSYS 210.* Laboratory course to accompany PSYS 210. Laboratory exercises involving research design, methodology, data collection, methods of organizing and presenting data, and research report writing. Equivalent to PSY 211.

**PSYS 220. INTRODUCTION TO LIFESPAN 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. Equivalent to PSY 220. **Colonnade E-SB | SB**

**PSYS 290. SUPERVISED STUDY IN PSYCHOLOGICAL SCIENCES. (1-3)** *Prerequisite: PSYS or PSY 100, or PSYS 160.* Directed readings or research under faculty supervision. Students must make their own arrangements in advance for supervision by a faculty member. Does not count towards completion of the major in psychological science.

**PSYS 300. WRITING IN PSYCHOLOGICAL SCIENCES. (3)** *Prerequisite: ENG 200, and PSYS 160 or PSYS 100 or PSY 100.* Learning to write about research in neural and behavioral science within the discipline in American Psychological Association (APA) style and for a lay audience. **Colonnade F-W2 | WC**

**PSYS 313. STATISTICS IN PSYCHOLOGY. (3)** *Prerequisites: PSYS 210 and 211 with a grade of "C" or better.* Methods of organizing, describing, and analyzing psychological data. Equivalent to PSY 313.

**PSYS 321. CHILD DEVELOPMENTAL PSYCHOLOGY. (3)** *Prerequisite:* PSYS or PSY 100 or PSYS or PSY 220. 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.

**PSYS 322. LABORATORY IN DEVELOPMENTAL PSYCHOLOGY. (1)** *Prerequisite:* PSYS / PSY 210 with a grade of C or better or permission of the instructor. *Prerequisite / Corequisite:* PSYS 321. This course provides a laboratory-based introduction to research in developmental psychology. Students will learn about the unique research designs, methodologies, and ethical concerns related to conducting developmental psychology research. At the same time students will learn some of the major methods used by developmental psychologist through hands-on experience using a variety of research techniques.

**PSYS 331. PRINCIPLES OF HUMAN AND ANIMAL LEARNING. (3)** *Prerequisites:* PSYS or PSY 210 and PSYS or PSY 211 with a grade of "C" or better. Overview of theory and research in human and animal learning, emphasizing classical and instrumental conditioning, aversive conditioning, and comparative psychology.

**PSYS 333. COGNITIVE PSYCHOLOGY. (3)** *Prerequisites:* PSYS or PSY 210 and PSYS or PSY 211 with a grade of "C" or better, 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.

**PSYS 334. LABORATORY IN COGNITION. (1)** *Prerequisite:* PSYS / PSY 210 with a grade of "C" or better, or permission of the instructor. *Prerequisite / Corequisite:* PSYS 333. Laboratory emphasizing experimental design and data collection in cognitive psychology.

**PSYS 350. SOCIAL PSYCHOLOGY. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. 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, prejudice, and persuasion. Equivalent to PSY 350. **Colonnade K-SC**

**PSYS 353. PSYCHOLOGY OF PREJUDICE AND STEROTYPING. (3)** *Prerequisites or Corequisites:* PSYS 100 or PSY 100 or SOCL 100, and 21 hours of Foundations and Explorations Courses, or junior status. Presents classic and current social-psychological theory and research in the area of prejudice and stereotyping. You will learn some of the social-cognitive principles by which these phenomena occur and have the opportunity to apply this learning to your own life. **Colonnade K-SY**

**PSYS 360. BEHAVIORAL NEUROSCIENCE. (3)** *Prerequisites:* PSYS or PSY 210 and PSYS or PSY 211 with a grade of "C" or better, or permission of the instructor. An examination of the neurological bases of behavior emphasizing brain processes and structures underlying major psychological constructs such as sensation, learning, emotion, and psychological disorders. Only one of the two courses PSYS 360 and PSYS 362 can be counted towards the Psychological Science major or minor, or the Neuroscience minor.

**PSYS 362. BEHAVIORAL NEUROSCIENCE WITH LAB. (4)** *Prerequisites / Corequisites:* Major or minor in Psychological Sciences, or minor in Neuroscience; PSYS 210 / PSY 210 and PSYS 211 / PSY 211 with a grade of "C" or better, or permission of the instructor. An examination of the neurological bases of major psychological constructs including lab-based activities such as dissections, physiological recordings and behavioral measures. Open only to psychological science minor / majors and Neuroscience minors. Only one of the two courses PSYS 360 and PSYS 362 can be counted towards the Psychological Science major or minor, or the Neuroscience minor. **Course Fee**

**PSYS 363. SENSORY AND PERCEPTUAL SYSTEMS. (3)** *Prerequisites:* Sophomore standing or permission of the instructor. Examination of human / animal sensory and perceptual systems using neurophysiological and psychophysical methods. Examination of both subcortical and cortical brain functioning. Emphasizes the visual, tactile / haptic, and auditory systems.

**PSYS 370. INDUSTRIAL / ORGANIZATIONAL PSYCHOLOGY. (3)** *Prerequisite:* Junior standing or permission of the instructor. The application of psychological principles and research leadership, teamwork, work stress, and employee attitudes.

**PSYS 380. PSYCHOLOGY AND SCIENCE FICTION. (3)** *Prerequisite:* Junior standing and PSYS/PSY 100, or permission of the instructor. Examination of mind and behavior as portrayed in science fiction.

**PSYS 413. PSYCHOLOGICAL MEASUREMENT. (3)** *Prerequisites:* PSYS or PSY 210 and 211, or permission of the instructor. The consideration of methodological, theoretical, and ethical problems involved in test construction and use. Topics covered include reliability, validity, predictive efficiency, structure of human abilities, achievement tests, and projective techniques.

**PSYS 423. PSYCHOLOGY OF ADULT LIFE AND AGING. (3)** *Prerequisites:* 21 hours of Foundations and Explorations Courses, or junior status 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. **Colonnade K-SY**

**PSYS 424. TOPICS IN DEVELOPMENTAL PSYCHOLOGY. (3)** *Prerequisite:* PSYS or PSY 220 or PSYS 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.

**PSYS 425. DEVELOPMENTAL PSYCHOPATHOLOGY. (3)** *Prerequisite:* PSYS 210 and PSYS 211 with grades of C or better, and PSYS 220 or PSYS 321 or PSYS 440, or permission of instructor. Examines the interaction between the dynamic processes underlying both normative human development and the development of psychopathology. Theoretical and empirical research will be reviewed, focusing on the psychological science of the principles of adaptation and maladaptation.

**PSYS 431. PSYCHOLOGY OF LANGUAGE. (3)** *Prerequisites:* PSYS or PSY 210 and PSYS or PSY 211 with a grade of "C" or better, and junior standing or permission of the instructor. Overview of scientific study of human language abilities, with primary emphasis on individual psychological mechanisms.

**PSYS 433. JUDGMENT AND DECISION MAKING. (3)** *Prerequisites:* PSYS or PSY 210 and PSYS or PSY 211 or permission of instructor. Description and analysis of how actual decisions differ from optimal decisions. Survey of judgments under risk and uncertainty and of major topics in judgment research.

**PSYS 440. ABNORMAL PSYCHOLOGY. (3)** *Prerequisites:* Six hours in psychological science and/or psychology, including PSYS or 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. Equivalent to PSY 440.

**PSYS 442. PSYCHOLOGY OF SUICIDE AND SELF-INJURY. (3)** *Prerequisite:* Junior standing and a grade of C or better in PSYS 440, or permission of instructor. Focuses on the study of self-harm behavior, specifically on suicide and self-injury. Topics include theories of suicide, risk and protective factors, assessing and managing suicide risk in clinical settings, treatment for suicidal patients, ethics, nonsuicidal self-injury, the neurobiology of suicide, and prevention and post-vention.

**PSYS 450. PSYCHOLOGY OF PERSONALITY. (3)** *Prerequisites:* Six hours of psychological science and/or psychology, including PSYS or 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.

**PSYS 451. PSYCHOLOGY OF RELIGION. (3)** *Prerequisites:* Nine hours of psychological science and/or psychology, including PSYS or PSY 100, and junior standing; or permission of the instructor. PSYS or PSY 210, 313, and PSYS 450 are preferred but not essential. Classical theories and current research in the psychology of religion.

**PSYS 453. PSYCHOLOGY OF WOMEN. (3)** *Prerequisites:* Six hours in psychological sciences and / or psychology, including PSYS or 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.

**PSYS 462. NEUROSCIENCE OF LEARNING AND MEMORY. (3)** *Prerequisites:* PSYS 210 and PSYS 211 with a "C" or better or permission of the instructor. Introduction to the neural basis of learning and memory. Topics include cellular and molecular mechanisms of learning and memory, neural substrates of different learning and memory systems, impairment of learning and memory tied to brain disorders.

**PSYS 463. EVOLUTIONARY PSYCHOLOGY. (3)** *Prerequisites:* PSYS or PSY 100 or PSYS 160 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.

## COURSE DESCRIPTIONS

**PSYS 465. PSYCHOPHARMACOLOGY. (3)** *Prerequisites: Junior standing or permission of the instructor.* Examination of psychoactive drugs and their effects upon the brain and neural mechanisms responsible for mind and behavior.

**PSYS 473. TRAINING IN BUSINESS AND INDUSTRY. (3)** *Prerequisite: MGT 311 or PSYS 370 or permission of the instructor.* An introduction of theories, research, and methods of training needs analysis, program design, implementation, and evaluation. Equivalent to MGT 473.

**PSYS 481. HISTORY OF PSYCHOLOGY. (3)** *Prerequisites: Nine hours in Psychology, including PSY 100 or PSYS 100 and junior standing or permission of the instructor.* Overview of major historical developments in psychology and related scientific disciplines, such as medicine, neurophysiology, and physics. Emphasizes developments over the past 500 years. History of the scientific study of human/animal behavior, as well as cognitive, perceptual, and mental functioning. Equivalent to PSY 481.

**PSYS 482. PSYCHOLOGY OF SEXUALITY. (3)** *Prerequisite: PSYS or PSY 100 or PSYS or PSY 220; 21 hours of Foundations and Explorations Courses, or junior status.* 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. **Colonnade K-SY**

**PSYS 490. INDEPENDENT STUDY IN PSYCHOLOGICAL SCIENCES. (1-3)** *Prerequisites: PSYS 100 / PSY 100, junior standing, and permission of the faculty project supervisor.* Advanced students will conduct research and /or readings in psychological sciences under the direction of the faculty. The course may be repeated. No more than six credits will count toward completion of the extended option of the psychological science major, and no more than three credit hours will count toward completion of the non-extended option of the major or the psychological science minor.

**PSYS 499. SENIOR SEMINAR IN PSYCHOLOGY. (3)** *Prerequisites: 12 hours in psychology, including PSY 100 / PSYS 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. Equivalent to PSY 499.

### RE – REAL ESTATE SCHOOL 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: Permission of program advisor.* 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 – RECREATION SCHOOL OF KINESIOLOGY, RECREATION, AND SPORT (REC)

**REC 200. RECREATION IN SOCIETY. (3)** Introduces the student to recreation, parks and leisure history, philosophical concepts, and trends with attention to recreation sectors and employment opportunities. **Colonnade E-SB | SB**

**REC 220. UNDERSTANDING THE NONPROFIT SECTOR. (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. EXPERIENCE PLANNING AND EVALUATION. (3)** Methodologies, skills and materials needed for designing, planning, implementing and evaluating meaningful experiences and programs for diverse populations in multiple settings. Includes the application of concepts and theories and an exploration of recreation and experience industry trends.

**REC 320. PROFESSIONAL DEVELOPMENT IN RECREATION. (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)** Application of outcome-based recreational experience development, which embraces personal and cultural dimensions of diversity. Emphasis on facilitating programs for individuals who have differing physical and mental abilities, ages, genders, ethnicities, and cultural values.

**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 338. PARKS, RECREATION, AND QUALITY OF LIFE. (3)** An interdisciplinary approach to studying the relationship between access to parks and other natural environments, recreation, and quality of life. Investigates issues of responsibility, conservation, wellness, and social equity in a variety of local and global contexts. Students may be responsible for travel to off-campus locations.

**REC 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.

**REC 404. RECREATION FACILITY MANAGEMENT. (3)** A practical orientation to management for a variety of recreation facilities.

**REC 406. RECREATION ADMINISTRATION. (3)** Recreation administration with emphasis on personnel, planning, facilities, legal issues and public relations.

**REC 420. RECREATION AND TOURISM. (3)** A focused examination of recreation and tourism with particular attention to business principles, trends, and job opportunities. The relationships between recreation, events, and tourism serves as a key framework.

**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 RETREAT CENTER ADMINISTRATION. (3)** Organization and administration of camp and retreat 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. RESOURCE INTERPRETATION. (3)** Explores interpretive approaches to natural, cultural, and historical resources in leisure settings. Principles, philosophies, and techniques of resource interpretation are studied. Emphasizes practice and development of presentation skills. Includes design of interpretive products potentially including, but not limited to, exhibits, media, and brochures. Students are responsible for their own transportation to off-campus meetings.

**REC 435. OUTDOOR EXPERIENCE PLANNING. (3)** Principles and techniques for planning, designing, implementing and evaluating outdoor trips and experiences. Students will need to provide transportation for off-campus meetings.

**REC 437. OUTDOOR LEADERSHIP EXPEDITION. (3)** *Prerequisites: REC 335, 337, 435 or instructor's permission. May be corequisite.* 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 480. TRAVEL-BASED LEARNING IN RECREATION AND TOURISM. (1-3)** *Prerequisite: Permission of Instructor.* Experiential exploration of recreation and tourism topics taught in a travel-based learning environment (international or domestic location).

**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)** *Prerequisites: 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)** *Prerequisites: 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. NONPROFIT ADMINISTRATION CONFERENCE. (1)** *Prerequisites: REC 220 and instructor's permission.* Focuses on developing nonprofit professionals. Conference activities such as workshops, case studies, speakers, and a career fair facilitate networking with students and nonprofit executives. This course requires off-campus travel. Students are responsible for conference and travel costs.

**REC 496. NONPROFIT INTERNSHIP. (3-6)** *Prerequisite: 12 hours of minor coursework or 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— RELIGIOUS STUDIES  
DEPARTMENT OF PHILOSOPHY AND RELIGION (RELS)**

**RELS 100. THE NEW TESTAMENT. (3)** An introduction to the historical, literary, and cultural approaches to the New Testament with a view toward understanding and interpretation. **Colonnade E-AH | AH**

**RELS 101. 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. **Colonnade E-AH | AH**

**RELS 102. WORLD RELIGIONS. (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. **Colonnade E-AH | AH**

**RELS 103. RELIGIONS OF ASIA. (3)** Introduction to the history, doctrines, and practices of the major religions of India, China and Japan.

**RELS 150. ELEMENTAY LATIN. (3)**

**RELS 151. ELEMENTARY LATIN (CONTINUED). (3)** *Fulfills World Language with a grade of C or better.*

**RELS 152. BIBLICAL LANGUAGES I: INTRODUCTORY HEBREW. (3)** A study of the vocabulary, grammar, and syntax of Biblical Hebrew. Equivalent to BLNG 152.

**RELS 153. BIBLICAL LANGUAGES II: INTERMEDIATE HEBREW. (3)** *Prerequisite: RELS 152.* 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. Equivalent to BLNG 153. **Fulfills World Language with a grade of C or better.**

## COURSE DESCRIPTIONS

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**RELS 154. BIBLICAL LANGUAGES III: INTRODUCTORY GREEK. (3)** A study of the vocabulary, grammar, and syntax of Koine Greek. Equivalent to BLNG 154.

**RELS 155. BIBLICAL LANGUAGES IV: INTERMEDIATE GREEK. (3)**  
*Prerequisite: RELS 154.* Further development of an understanding of Koine Greek with readings in the New Testament and Hellenistic literature. Equivalent to BLNG 155. **Fulfills World Language with a grade of C or better.**

**RELS 156. 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 157. 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. **Fulfills World Language with a grade of C or better.**

**RELS 200. WORLD RELIGIOUS LITERATURE. (3)** *Prerequisite: ENG 100.* Introductory study of multiple genres of religious literature or literature with strong religious themes. Texts come from various religions, cultures, and time periods. **Colonnade F-AH | AH**

**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. Equivalent to PHIL 202.

**RELS 211. JESUS IN FILM. (3)** A study of the production and reception of films about Jesus, similarities and differences with canonical and extracanonical Gospels, and popular and critical reactions. **Colonnade K-SC**

**RELS 222. CHRISTIANS, JEWS, AND PAGANS IN THE GRECO-ROMAN WORLD. (3)** *Prerequisite: 21 hours of Foundations or Explorations Courses, or junior status.* A study of debates among ancient pagans, Jews, and Christians by engaging texts written by each group in defense of themselves and in opposition to each other. **Colonnade K-SC**

**RELS 242. MEANINGS OF LIFE: ATHEISM TO ZEN. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Survey of global theories on the meaning of life. **Colonnade K-LG**

**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. BUDDHISM. (3)** Introduction to the history, fundamental doctrines, and practices of the three main Buddhist traditions (Theravada, Mahayana, Vajrayana) in their global contexts.

**RELS 303. HINDUISM. (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.

**RELS 304. JUDAISM. (3)** A survey of Jewish religious traditions, Jewish history and literature from the Greco-Roman period to the present.

**RELS 305. CHRISTIANITY. (3)** Overview of ideas drawn from the history of Christianity, including major intellectual developments behind its global character. **Colonnade K-SC.**

**RELS 306. ISLAM. (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.

**RELS 309. GLOBAL CHRISTIANITY. (3)** The study of Christianity in Africa, Asia and Latin America.

**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 313. ISLAMIC TEXTS AND LITERATURE. (3)** An exploration of Islamic texts and literature, including the Qur'an, hadith, poetry, and fiction.

**RELS 314. THE MAKING OF THE BIBLE. (3)** An investigation into the material, historical, and political processes behind the making of the Jewish and Christian Bibles in antiquity by engaging the Scriptures excluded from the canon as well as early synagogue and church leaders' arguments concerning canonicity.

**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 317. CONFUCIANISM. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* A survey of the evolution of Chinese Confucian thought, from the ethical and ritual considerations of Confucius, through the scholastic self-cultivation of Zhu Xi, to the ecological and gender concerns of modern New Confucians. **Colonnade K-SY**

**RELS 318. DAOISM. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Survey of classical texts of Daoism, including an examination of the role of these texts in the development **Colonnade K-SC**

**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.

**RELS 322. ISLAM AND PILGRIMAGE. (3)** An exploration of Islamic pilgrimage, including the use of technology in modern pilgrimage practices. **Colonnade K-LG**

**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.

**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.

**RELS 325. RELIGION IN CONTEMPORARY AMERICA. (3)** A study of the ways religion is understood and expressed by varying segments of American society.

**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 331. ISLAM IN AMERICA. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* An exploration of Islam in America beginning with the 16<sup>th</sup> century and continuing to the present day. **Colonnade K-SC**

**RELS 333. WOMEN AND RELIGION. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* The examination of primary and secondary sources on women's contributions to western and non-western religious thought. **Colonnade K-SC**

**RELS 341. RELIGION AND THE ENVIRONMENT. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Examines different world religions' beliefs about the environment as well as their adherents' attitudes and actions concerning the environment, climate change and other problems of planetary life today. **Colonnade K-SC**

**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 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)** *Prerequisite: 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. (1)** *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.

**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.

**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 | Fulfills World Language with a grade of C or better.**

**RUSS 201. INTERMEDIATE RUSSIAN I. (3)** *Prerequisite: RUSS 102.* 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. **Fulfills World Language with a grade of C or better.**

**RUSS 202. INTERMEDIATE RUSSIAN II. (3)** *Prerequisite: RUSS 201 or equivalent.* Continued expansion or interpersonal communication skills at the intermediate level. Emphasis on increasing comprehension, the building of vocabulary, and on presentational modes of speaking and writing. **Fulfills World Language with a grade of C or better.**

**SEC – SECONDARY EDUCATION  
SCHOOL OF TEACHER EDUCATION**

**SEC 350. CLINICAL PRACTICES IN SECONDARY TEACHING I. (8)** *Prerequisites: EDU 250 or MGE 275 and PSY 310.* Develop a working knowledge of planning, implementation of instruction, assessment, diversity, and classroom climate for a secondary student population. Clinical experiences are required.

**SEC 351. TEACHING STRATEGIES FOR SECONDARY SCHOOLS. (3)** *Prerequisites: EDU 250 or MGE 275 and 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 or MGE 275 and PSY 310. Prerequisite or Corequisite: SEC 351.* 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 450. CLINICAL PRACTICES IN SECONDARY TEACHING II. (1)** *Prerequisites: EDU 350; Corequisite: LTCY 421 and appropriate content methods courses (e.g. SEC 475, SEC 481).* Develop an advanced knowledge of planning, implementation of instruction, assessment, diversity, and classroom climate for a secondary student population. Clinical experiences are required.

**SEC 453. MANAGEMENT OF INSTRUCTION. (3)** *Prerequisites: Must be admitted to the Teacher Education Program. EDU 250, PSY 310, (SEC 351, SEC 352 or SPED 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 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, SPED 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, 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, SPED 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. Equivalent to MGE 479.

**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. Equivalent to MGE 481.

**SEC 483. TEACHING HEALTH. (3)** *Prerequisites: EDU 250, PSY 310, SPED 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 ALLIED HEALTH**

**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 – 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**

**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.

**SJB – SCHOOL OF JOURNALISM & BROADCASTING**

**SJB 101. UNDERSTANDING MEDIA CONTENT, ETHICS AND TECHNOLOGY. (3)** Develops a framework to access, analyze, evaluate, and interact with content, audiences and technology in a variety of digital forms.

**SJB 102. MEDIA CONTENT, COLLABORATION AND COMMUNITY. (3)** *Prerequisite: Restricted to majors in the School of Journalism & Broadcasting.* Working in collaborative teams to produce digital content for distribution through various media channels including web, social, and mobile. Lecture and lab. **Course Fee**

## COURSE DESCRIPTIONS

**SJB 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. **Colonnade E-SB | SB**

**SJB 210. SOFTWARE STUDIO FOR DESIGNERS.** (3) An introduction to the industry standard software to edit photos, create logos/branding packages, illustrations and layouts for print and interactive media. Equivalent to AD 210. **Course Fee**

**SJB 241. VISUALIZING DATA IN JOURNALISM.** (3) *Prerequisites: SJB 101 and SJB 102.* Learn to find and examine large sets of data to identify embedded trends and stories, and display this data visually. Lecture and lab. **Course Fee**

**SJB 310 MEDIA DIVERSITY.** (3) *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Explores journalistic coverage of diversity in terms of race, culture, gender and sexual orientation including newspaper, radio, television, film, video games, digital media, advertising, and public relations. **Colonnade K-SC**

**SJB 330. INTERACTIVE DESIGN.** (3) *Prerequisite: AD/SJB 210 with a grade of "C" or better or instructor permission.* Exploration into the design process and techniques for creating interactive experiences. Encompasses information architecture, usability, front-end programming, design literacy, as well as applied user-experience design. Equivalent to UX 330.

**SJB 340. PROGRAMMING FOR MEDIA PLATFORMS.** (3) *Prerequisite: AD/SJB 210 with a grade of "C" or better or permission of instructor.* Introduction to concepts, principles, and skills required to code and program media platforms. Explores modern markup languages and content management systems. No programming experience required. Equivalent to UX 340. **Course Fee**

**SJB 399. SPECIAL TOPICS IN MEDIA-STUDY ABROAD.** (1-6) This course covers media and cultural study and practical journalism experiential learning in international or out-of-town locations. This course may be repeated one time, but no more than 3 total hours may be included in the major or minor portion of the degree program

**SJB 402. FIRST ADMENDMENT RESEARCH AND REPORTING.** (3) *Prerequisite: Permission of instructor.* A practical, hands-on alternative capstone course that brings together skills learned throughout the student's academic career to provide an opportunity to work within a team concept and to produce a series of stories related to First Amendment issues.

**SJB 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.

### 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. **Course Fee | Colonnade E-SB | SB**

**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. **Course Fee | Colonnade E-SB | SB**

**SMED 300. MIDDLE GRADES SCIENCE SKILLS AND METHODS.** (3) *Prerequisites: MATH 117, nine hours of science, admission to teacher education.* Laboratory-based introduction to the science skills and methods needed by middle school teachers.

**SMED 301. DESIGNING AND TEACHING INQUIRY-BASED MATHEMATICS AND SCIENCE UNITS.** (3) *Prerequisites: Sophomore standing and nine 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. **Course Fee**

**SMED 310. KNOWING AND LEARNING IN MATHEMATICS AND SCIENCE.** (3) *Prerequisites: SMED 101 and SMED 102 with a "C" or better; or SMED 101 with a "B" or better and sophomore status.* 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. **Course Fee**

**SMED 320. CLASSROOM INTERACTIONS.** (3) *Prerequisite: Successful completion of SMED 310.* 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. **Course Fee**

**SMED 340. PERSPECTIVES ON MATHEMATICS AND SCIENCE.** (3) *Prerequisite: Successful completion of SMED 310.* 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. **Course Fee**

**SMED 360. RESEARCH METHODS FOR MATH AND SCIENCE TEACHERS.** (3) *Prerequisite: Successful completion of SMED 310.* 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. **Course Fee**

**SMED 400. APPLYING MIDDLE GRADE SCIENCE ACROSS DISCIPLINES.** (3) *Prerequisites: SMED 300 and 15 hours of science.* Introduction to the knowledge and skills needed to create middle grades science lessons that incorporate content and real-world examples from different disciplines.

**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. **Course Fee**

**SMED 489. SMED STUDENT TEACHING SEMINAR.** (3) *Prerequisite: Approved for admission to student teaching. Corequisite: 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 – SOCIOLOGY DEPARTMENT OF SOCIOLOGY (SOCL)

**SOCL 100. INTRODUCTORY SOCIOLOGY.** (3) Introduction to the basic concepts of society and culture, group behavior, population, class, minorities, community, social institutions and social changes. **Colonnade E-SB | SB**

**SOCL 210. INTERACTION: SELF IN SOCIETY.** (3) 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.

**SOCL 220. MARRIAGE AND FAMILY.** (3) *Prerequisites: SOCL 100 or consent of instructor and 21 hours of Foundations and Explorations Courses, or junior status.* Analysis of the family institution, its structure and function and the dynamics of social change in family interaction and organization. **Colonnade K-SC**

**SOCL 240. GLOBAL SOCIAL PROBLEMS.** (3) *21 hours of Foundations and Explorations Courses, or junior status.* Examines causes of and responses to critical social problems in different world regions, with a focus on the dimensions and impacts of globalizations. Diverse social theories area applied to interpret problems such as environmental degradation, AIDS, family violence, racism, migration, international poverty, and crime. **Colonnade K-LG**

**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 270. INTRODUCTION TO COMMUNITY, ENVIRONMENT, & DEVELOPMENT. (3)** *Prerequisites: SOCL 100 or consent of instructor and 21 hours of Foundations and Explorations Courses, or junior status.* Examines the causes, dynamics, and consequences of socio-economic change for people, how they live in communities, and how they relate to the natural world. Survey course for "Community, Environment, & Development concentration. **Colonnade K-LG**

**SOCL 300. USING STATISTICS IN SOCIOLOGY. (3)** *Prerequisite: MATH 109 or 116 or MATH 183 or equivalent.* Techniques of statistical description and elementary statistical inference as applied to social data.

**SOCL 302. SOCIAL RESEARCH METHODS. (3)** Use of the scientific method as applied to societies, institutions, and social interaction. Development of research questions, research ethics, criteria for establishing causality, methods of research design, measurement, sampling techniques, and methods of data collection such as survey design. It is recommended that students take an introductory level social science class before enrolling in SOCL 302.

**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)** *Prerequisites: SOCL 100 or consent of instructor and 21 hours of Foundations and Explorations Courses, or junior status.* Study of the various forms and content of religious organizations and movements and the behavioral and attitudinal concomitants of religious affirmation. **Colonnade K-SY**

**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 342. AGING IN SOCIETY. (3)** *21 hours of Foundations and Explorations Courses, or junior status.* 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. **Colonnade K-SY**

**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. SYSTEMS OF SOCIAL INEQUALITY. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Analysis of social origins, development, and persistence of inequality as a human system present in all societies. Course covers systems of stratification in the US (class, race, gender, ethnicity, etc.) used to differentially distribute social rewards. Some sections require a service-learning project.

**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 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: SOCL 100 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.

**SOCL 363. POPULATION, SOCIETY, AND DEVELOPMENT. (3)** *Prerequisite: Students should have taken 21 hours of Colonnade Foundations and Explorations courses before enrolling.* Course examines population as a system, focusing on the causes and consequences of population size, growth or decline, composition, and distribution in the United States and other countries with an eye toward development. Emphasis is placed the interrelationship of system components (fertility, mortality and migration) as well as their relationship with other systems (e.g. social, economic, political, ecological). This course fulfills the Connections: Systems requirement of Colonnade. **Colonnade K-SY**

**SOCL 372. CAUSES AND CONSEQUENCES OF HUMAN-WILDLIFE CONFLICT. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Global study of human-wildlife conflict and the varying ecological, social, economic, and cultural realities that influence this conflict. **Colonnade K-LG**

**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.

**SOCL 376. SOCIOLOGY OF GLOBALIZATION. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Sociological analysis of causes, effects, and implications of the process by which people become more interconnected in different ways and across large distances. Within this framework, economic, cultural, environmental, political, and social issues will be examined. **Colonnade K-LG**

**SOCL 389. STIGMA AND SOCIETY. (3)** Sociological examination of the conceptualization, types, consequences, and management of stigma. Course will cover associative stigma, stigma resistance, and reintegration.

**SOCL 402. EVALUATION RESEARCH TECH. (3)** *Prerequisites: SOCL 300 or 302 and 60 hours completed credit hours.* Study of the methods, techniques, and philosophical approaches used in conducting research to identify and evaluate social problems, programs, and policies.

**SOCL 404. QUALITATIVE RESEARCH METHODS. (3)** *Prerequisites: SOCL 100 and 60 completed hours.* Study of the methods and techniques used in qualitative sociological research. Topics include observational research, in-depth interviewing 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 and 60 completed credit hours.* Study of theories and research techniques in the area of socialization with summary of the findings dealing with changes over the life course.

**SOCL 435. FAMILY VIOLENCE. (3)** A sociological perspective on family violence in the United States, emphasizing child abuse and intimate partner violence. Research, theory, laws, treatment and prevention are analyzed.

**SOCL 440. SOCIOLOGY OF HEALTH AND ILLNESS. (3)** 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 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 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 455. THEORY AND PRACTICE OF COMMUNITY DEVELOPMENT. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Course explores the ecological, interactional, structural functional, technical assistance, action research, evaluation research and leadership approaches to community development practice. Course requires participation in a community development project.

## COURSE DESCRIPTIONS

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**SOCL 466. GENDER, FAMILY, AND SOCIETY. (3)** *Prerequisite: SOCL 100.* Examination of gender dynamics and inequality in the context of the family. Issues examined may include mate selection, parenting, same-sex families and parenting, gendered divisions of work, gendered family dynamics by social class and race/ethnicity, costs, for example. SOCL 220 is recommended.

**SOCL 470. ENVIRONMENTAL SOCIOLOGY. (3)** *Prerequisites: ENG 300 and three 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, environmental justice, and the rights of nature. Students are responsible for arranging their own transportation for optional field trips.

**SOCL 480. SOCIOLOGY OF AGRI-FOOD SYSTEMS. (3)** *Prerequisite: SOCL 100 or consent of instructor.* Course examines the social organization and dynamics of food and agricultural systems. SOCL 270 is strongly recommended, but not required. Field trips are required.

**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. INTERNSHIP IN SOCIOLOGY. (1-6)** *Prerequisites: SOCL 300 or 302 and 80 hours of completed college coursework. Course pass required.* Internships are unique experiential learning opportunities. Once placed with a community partner, the student works toward an enhanced understanding or prior coursework through practical experience in a supervised work situation. Repeatable once for a maximum of six hours.

**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)

**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. May be repeated for a total of three credits.

**SPAN 101. ELEMENTARY SPANISH I. (3)** A beginning course designed to develop skills in understanding, speaking, reading and writing and to provide cultural insights.

**SPAN 102. ELEMENTARY SPANISH II. (3)** *Prerequisite: SPAN 101 or demonstrated proficiency of Novice Mid.* Continuation of development of four skills and of cultural insights. **Course Fee | Fulfills World Language with a grade of C or better.**

**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 people. Taught in English; only taught abroad.

**SPAN 200. LATIN AMERICAN SOCIETY: PAST AND PRESENT. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* 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. Equivalent to GEOG 200, HIST 200, and PS 200. **Colonnade K-SC**

**SPAN 201. INTERMEDIATE SPANISH I. (3)** *Prerequisite: SPAN 102 or demonstrated proficiency of Novice High.* A systematic review of grammar and development of reading skills. **Fulfills World Language with a grade of C or better.**

**SPAN 202. INTERMEDIATE SPANISH II. (3)** *Prerequisite: SPAN 201 or demonstrated proficiency of Intermediate Low.* Further review of grammar and development of reading skills. **Fulfills World Language with a grade of C or better.**

**SPAN 210. INTERMEDIATE SPANISH CONVERSATION ABROAD. (1-3)** *Prerequisite: SPAN 102 or demonstrated proficiency of Novice High.* 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. **Fulfills World Language with a grade of C or better.**

**SPAN 211. INTERMEDIATE SPANISH CULTURE ABROAD. (1-3)** *Prerequisite: SPAN 102 or demonstrated proficiency of Novice High.* 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. **Fulfills World Language with a grade of C or better.**

**SPAN 220. SPANISH FOR CRIMINAL JUSTICE PROFESSIONALS. (3)** *Prerequisite: SPAN 102 or demonstrated proficiency of Novice High.* 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 of one year of college Spanish or the equivalent. SPAN 220 will primarily be taught in study abroad programs in Mexico. **Fulfills World Language with a grade of C or better.**

**SPAN 230. SPANISH FOR MEDICAL PROFESSIONALS. (3)** *Prerequisite: SPAN 102 or demonstrated proficiency of Novice High.* 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. **Fulfills World Language with a grade of C or better.**

**SPAN 306. EXPERIENCING SPANISH ABROAD. (1-6)** *Prerequisites: SPAN 202 or demonstrated proficiency of Intermediate Mid. 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. **Fulfills World Language with a grade of C or better.**

**SPAN 331. BUSINESS SPANISH. (3)** *Prerequisite: SPAN 202 or demonstrated proficiency of Intermediate Mid.* 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. **Fulfills World Language with a grade of C or better.**

**SPAN 345. TOPICS IN SPANISH. (3)** *Prerequisites: SPAN 370 or SPAN 331 and SPAN 371.* This course will develop students' linguistic and critical reading skills, as well as their cultural understanding through examination of different contemporary topics in the Hispanic world.

**SPAN 370. SPANISH CONVERSATION. (3)** *Prerequisite: SPAN 202 or demonstrated proficiency of Intermediate Mid.* Exercises in pronunciation, comprehension and oral expression. **Fulfills World Language with a grade of C or better.**

**SPAN 371. SPANISH COMPOSITION AND GRAMMAR. (3)** *Prerequisite: SPAN 202 or demonstrated proficiency of Intermediate Mid.* Controlled written compositions and oral expression. Systematic and intensive review of grammar. **Fulfills World Language with a grade of C or better.**

**SPAN 372. LATIN AMERICAN CIVILIZATION AND CULTURE. (3)** *Prerequisite: SPAN 370 or SPAN 331, and SPAN 371.* Survey of the historical and cultural background of Latin America and its people from the Discovery to the present. **Fulfills World Language with a grade of C or better.**

**SPAN 373. SPANISH CIVILIZATION AND CULTURE. (3)** *Prerequisite: SPAN 370 or SPAN 331, and SPAN 371.* Survey of historical and cultural background of Spain and its people from the Roman colonization to the present. **Fulfills World Language with a grade of C or better.**

**SPAN 374. LITERATURE AND CULTURE OF SPAIN. (3)** *Prerequisite: SPAN 370 or SPAN 331, and SPAN 371.* 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. **Fulfills World Language with a grade of C or better.**

**SPAN 376. LITERATURE AND CULTURE OF LATIN AMERICA. (3)** *Prerequisite: SPAN 370 or SPAN 331, and SPAN 371.* 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. **Fulfills World Language with a grade of C or better.**

**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. **Fulfills World Language with a grade of C or better.**

**SPAN 384. SPANISH PHONETICS AND PHONOLOGY. (3)** *Prerequisite:* SPAN 331 or SPAN 370 and 371. An analytical and practical study of contemporary Spanish pronunciation (phonetics and phonology), including the articulatory system, sound production, the classification of vowels and consonants, phonetic transcription and some dialect features.

**SPAN 389. INTERNSHIP IN SPANISH. (1-3)** *Prerequisites:* SPAN 372 or SPAN 373 or SPAN 374 or SPAN 376 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. **Fulfills World Language with a grade of C or better.**

**SPAN 453. INTRODUCTION TO SPANISH LINGUISTICS. (3)** *Prerequisite:* SPAN 372 or SPAN 373, and SPAN 374 or SPAN 376. An overall understanding of major sub-areas of Spanish linguistics that will allow students to develop a deeper appreciation of the structure of Spanish and the speakers' use of the language.

**SPAN 455. TOPICS IN HISPANIC LITERARY AND CULTURAL STUDIES. (3)** *Prerequisite:* SPAN 345 or SPAN 372 or SPAN 373, and SPAN 374 or SPAN 376. Examines different literary and cultural topics of interest in Hispanic Studies. May be repeated for different topics. **Fulfills World Language with a grade of C or better.**

**SPAN 470. ADVANCED ORAL SPANISH. (3)** *Prerequisite:* SPAN 370. Conversation units, dramatic sketches, original oral topics. **Fulfills World Language with a grade of C or better.**

**SPAN 471. ADVANCED SPANISH COMPOSITION. (3)** *Prerequisite:* SPAN 371 and SPAN 372 or SPAN 373 or SPAN 374 or SPAN 376. Examination of selected literary works; original compositions on selected topics. **Fulfills World Language with a grade of C or better.**

**SPAN 476. TWENTIETH CENTURY SPAIN. (3)** *Prerequisite:* SPAN 374 or SPAN 376. 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. **Fulfills World Language with a grade of C or better.**

**SPAN 480. TRANSLATION AND INTERPRETING. (3)** *Prerequisite:* SPAN 372 or SPAN 373, and SPAN 374 or SPAN 376. The principles of translation and translation history including extensive practical work with translations of literary and non-literary texts from Spanish to English and vice versa. Students will also learn the principles and develop the skills of interpretation.

**SPAN 490. HISPANIC CINEMA. (3)** *Prerequisites:* SPAN 370 or SPAN 331, and SPAN 371, and one other 300-level. 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. **Fulfills World Language with a grade of C or better.**

**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. **Fulfills World Language with a grade of C or better.**

**SPED – SPECIAL EDUCATION  
SCHOOL OF TEACHER EDUCATION**

**SPED 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.

**SPED 330. INTRODUCTION TO EXCEPTIONAL EDUCATION: DIVERSITY IN LEARNING. (3)** *Prerequisites:* EDU 250, FACS 192, MGE 275, AGED 250 or AMS 329; and either PSY 310 or FACS 191; or instructor permission. Characteristics of exceptionality, special education programs, schools, and community resources and research relative to exceptionality. 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.

**SPED 331. EARLY CHILDHOOD EDUCATION FOR CHILDREN WITH DISABILITIES. (3)** *Prerequisites:* FACS 191, FACS 192, or instructor permission. *Corequisites:* SPED 330 or instructor permission. 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.

**SPED 332. INTERVENTION STRATEGIES FOR STUDENTS WITH MILD DISABILITIES. (3)** *Prerequisites:* SPED 331, 333, and 432. *Corequisites:* SPED 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.

**SPED 333. TRANSITION: SCHOOL TO ADULT LIFE. (3)** *Prerequisites:* SPED 330 and LTCY 320. *Corequisites:* SPED 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.

**SPED 334. FIELD-BASED PRACTICUM WITH INDIVIDUALS WITH DISABILITIES. (3)** *Prerequisites:* SPED 331, 333 and 432. *Corequisites:* SPED 332, 422, 430 and 433. Students interact with individuals with disabilities in classrooms and institutions via field experiences to discover the nature of exceptionality, 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.

**SPED 335. FOUNDATIONS OF SPECIAL EDUCATION. (3)** *Prerequisite:* EDU 350, or instructor permission. A foundational methods course of special education history, law and procedures for effective design to manage, plan, assess, and teach P-12 students in LBD programs. Field experience may be required. Students are responsible for their own transportation.

**SPED 340. LBD ELEMENTARY INSTRUCTIONAL METHODS. (3)** *Prerequisite:* SPED 335. Research-based instructional methods for elementary students with mild disabilities. Field experiences may be required. Students are responsible for their own transportation to assigned sites.

**SPED 345. LBD SECONDARY METHODS. (3)** *Prerequisite:* SPED 335. Methods, strategies, and models for providing curricular and instructional methodologies in the education of secondary LBD students. Integration of appropriate age- and ability-level academic instruction preparing for transition to work. Field experiences required. Students are responsible for own transportation to designated sites.

**SPED 350. ASSESSMENT IN SPECIAL EDUCATION. (3)** *Prerequisites:* SPED 335 and admission to professional education. Assessment of students with disabilities – progress monitoring, formative, summative, eligibility determination, and inclusion in accountability systems.

**SPED 400. BEHAVIOR MANAGEMENT STRATEGIES IN SPECIAL EDUCATION. (3)** *Prerequisites:* Passing the Praxis CASE tests (reading, writing, and math) as required for admission to teacher education and SPED 335 (or SPED 335 as co-requisite with teacher permission). Classroom management strategies specific to students with mild to moderate disabilities. Special consideration for the function, measurement, documentation, and modification of specific behaviors to improve student progress academically and socially. Fieldwork may be required. Students are responsible for their own transportation to designated sites.

**SPED 415. PRESCRIPTIVE PROGRAMMING FOR INDIVIDUALS WITH SEVERE EMOTIONAL AND BEHAVIORAL DISORDERS (3)** *Prerequisite:* SPED 334. *Corequisites:* SPED 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.

**SPED 416. FIELD-BASED PRACTICUM WITH INDIVIDUALS WITH MODERATE AND SEVERE DISABILITIES (3)** *Prerequisite:* SPED 334. *Corequisites:* SPED 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.

## COURSE DESCRIPTIONS

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**SPED 417. ASSESSMENT AND CURRICULUM I FOR STUDENTS WITH MODERATE / SEVERE DISABILITIES (3)** *Prerequisite:* SPED 334. *Corequisites:* SPED 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.

**SPED 418. ASSESSMENT AND CURRICULUM II FOR STUDENTS WITH MODERATE / SEVERE DISABILITIES (3)** *Prerequisite:* SPED 334. *Corequisites:* SPED 415, 416, 417 and 431. This course builds upon SPED 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.

**SPED 419. ASSISTIVE TECHNOLOGY IN THE CLASSROOM AND COMMUNITY. (3)** *Prerequisite:* SPED 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.

**SPED 422. COLLABORATION AND INCLUSION IN SCHOOL AND COMMUNITY SETTINGS. (3)** *Prerequisites:* SPED 331, 333 and 432. *Corequisites:* SPED 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.

**SPED 424. INCLUSION, COLLABORATION AND DIVERSITY IN THE CLASSROOM. (3)** *Prerequisites:* SPED 335 and admission to professional education or instructor approval. Develops and enhances communication in the collaboration roles of key stakeholders working with at-risk, identified, and diverse students in the special education process. Field experience required. Candidates are responsible for their own transportation to assigned sites.

**SPED 425. LBD LANGUAGE INTERVENTIONS: STRATEGIES AND MATERIALS. (3)** *Prerequisites:* SPED 335 and admission to professional education. Language and reading development with emphasis on remediation using research-based strategies, methods, and materials for students with LBD, including English learners.

**SPED 430. DIAGNOSIS FOR INSTRUCTIONAL PLANNING: STUDENTS WITH MILD DISABILITIES. (3)** *Prerequisites:* SPED 331, 333, and 432. *Corequisites:* SPED 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.

**SPED 431. LANGUAGE INTERVENTION: STRATEGIES AND MATERIALS. (3)** *Prerequisite:* SPED 334. *Corequisites:* SPED 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.

**SPED 432. APPLIED BEHAVIOR ANALYSIS. (3)** *Prerequisite:* SPED 330. *Corequisites:* SPED 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.

**SPED 433. MODELS OF POSITIVE BEHAVIOR SUPPORT. (3)** *Prerequisites:* SPED 331, 333 and 432. *Corequisites:* SPED 332, 334, 422 and 430. Examines an array of models for supporting positive behavior changes in students. Field experience required.

**SPED 434. STUDENT TEACHING SEMINAR. (3)** *Prerequisite:* Completion of all exceptional education coursework, admission to student teaching. *Corequisite:* SPED 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.

**SPED 480. SENIOR PROJECT FOR LEARNING AND BEHAVIOR DISORDERS. (3)** *Prerequisites:* SPED 424 and admission to professional education, or instructor approval. Supervised field placement in P-12 settings serving students with LBD. Students are responsible for arranging their own transportation to designated or assigned sites.

**SPED 490. STUDENT TEACHING: EXCEPTIONAL EDUCATION. (10)** *Prerequisite:* 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**

### SPM – SPORT MANAGEMENT SCHOOL 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 290. SPORT MANAGEMENT SEMINAR. (3)** *Prerequisite:* This course is restricted to students with a major code of 572P (Sport Management-Prep) or 572 (Sport Management). Exploration of sport management career planning including application materials, interviewing, and other professional issues.

**SPM 300. PUBLIC POLICY IN SPORT. (3)** Examines social, political, and economic impact of national and international sport. Topics include structure of public finance of sport, politics of sport, sport and public health, community ownership, globalization of sport, and professional sport.

**SPM 305. SPORT EVENT MANAGEMENT. (3)** Addresses the management of sporting events and tournaments. Students will learn multiple methods of designing and implementing tournaments and special events.

**SPM 310. SPORT ETHICS AND MORAL ISSUES. (3)** Examines ethical and moral issues that occur in sport organizations and teams.

**SPM 315. SPORT COMMUNICATION. (3)** Introduces students to the management of communication and public relations within sport.

**SPM 402. FISCAL PRACTICES IN SPORT MANAGEMENT. (3)** Financial principles and practices relevant to Sport Management. Topics include financial statements and ratios, financial risk management, debt and equity financing, feasibility studies, economic impact analysis, capital budgeting, and facility financing.

**SPM 404. SPORT FACILITY MANAGEMENT. (3)** A practical orientation to the management and operation of facilities that exist in sport management industries.

**SPM 450. SPORT LAW. (3)** *Prerequisites:* Junior or senior classification and admitted to the 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 the 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 the 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.

## SPS

## SCHOOL OF PROFESSIONAL STUDIES

**SPS 300. SYSTEMS THINKING AND PROBLEM SOLVING IN COMPLEX ORGANIZATIONS. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. An introduction to systems dynamics, the characteristics of complex systems, and the process of using a systems thinking perspective to solve problems in business organizations. **Colonnade K-SY**

**SPS 395. SPECIAL TOPICS IN PROFESSIONAL STUDIES. (3)** *Prerequisite(s):* Junior standing or permission of the instructor. A detailed study of a specialized topic in professional studies.

**SPS 399. INDEPENDENT STUDY IN PROFESSIONAL STUDIES. (1-3)** *Prerequisite:* Permission of the instructor. Individual research, literature review or professional development project in a specific area of professional studies, in close cooperation with supervising faculty. Repeatable two times for up to 6 credits.

**SPS 400. FOUNDATIONS OF GLOBAL CITIZENSHIP. (3)** An examination of the practice of global citizenship, the connection between the global and the local, common values, and shared challenges and benefits. **Colonnade K-LG**

## STAT – STATISTICS

## DEPARTMENT OF MATHEMATICS

**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:* three 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:* STAT 301 with a grade of "C" or better; STAT 330 (may be taken concurrently) or CS 396 with a grade of "C" or better; or permission of instructor. 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; STAT 330 (may be taken concurrently) or CS 396 with a grade of "C" or better; or permission of instructor. 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.

**STAT 440. CATEGORICAL DATA ANALYSIS. (3)** *Prerequisite:* A grade of "C" or better in STAT 301. *Prerequisite or Corequisite:* STAT 330. Categorical data analysis topics including contingency tables, log-linear models, relative risk and odds, and logistic regression. Statistical software packages will be used for data analyses.

## SUS

## DEPARTMENT OF ENGLISH

**SUS 099C. SUPPLEMENTAL WRITING LAB. (1)** *Prerequisite:* English ACT score of 15 or below, or equivalent. *Corequisite:* ENGL 100C. Students who wish to enroll in ENGL 100C who score below 16 on the ACT must also enroll in SUS 099C, a one-credit hour co-requisite support workshop. Enrollment in ENGL 100C and SUS 099C is at the discretion of the instructor.

**SUS 215. MAKERSPACE LITERACIES. (3)** An introductory course offering applied experience in current creative tools and technologies such as 3D printing, CNC routing, simple programming, robotics, and associated applied mathematics, this course is designed to develop student leadership (inclusion, diversity, teamwork), basic tool and shop safety (hand and small power tools/CNC machines), and introduce students to basic understanding and application of CNC technologies (3D printing, CNC router, laser and vinyl cutters), basic design concepts and familiar with current appropriate free software. Students will work individually and in teams to source materials, design and develop unique projects. Some semesters may include service learning such that students will participate in organized community and/or academic presentations.

**SUS 276. DISPLACED PERSONS & CIVIC ENGAGEMENT. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. Analysis individual and host country crises and concerns surrounding displaced persons (DPs).

Examination of the integration process and exploration of careers associated with assistance agencies. Includes a service learning project. **Colonnade K-LG**

**SUS 295. POPULAR CULTURE AND GENDER: SIGNS & NARRATIVES. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. Through the study of signs and narrative structures, this course investigates contemporary Western popular culture's concepts of gender. **Colonnade K-SC**

## 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. **Fulfills World Language with a grade of C or better.**

## 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. **Colonnade E-SB | SB**

**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 300. DIVERSITY AND SOCIAL WELFARE. (3)** *Prerequisite:* 21 hours of Foundations and Explorations Courses, or junior status. This course engages students in the analysis of the nature and impact of economics, political and social ideologies, and cultural forces that shape the development of social welfare policies impacting diverse populations in the United States and abroad. The course emphasizes comparative approaches to the analysis of welfare policies influencing service delivery locally and globally. Policies covered include those that address: poverty, public assistance, health and behavioral health care, criminal justice, child welfare, food insecurity, and homelessness. Specific attention will be paid to the implications of social welfare policies for economic, environmental, and social justice issues and their impact on marginalized populations. **Colonnade K-LG**

**SWRK 301. SOCIAL WORK PRACTICE FOR DIVERSITY, EQUITY, AND INCLUSION. (3)** *Prerequisites / corequisites:* SWRK 101, SWRK 205, and admission to the BSW program. Explores how students' personal identity and experiences shape views of social, economic, and environmental justice issues affecting marginalized populations. Focuses on building upon this understanding to begin to develop cultural competence in preparation for social work practice with vulnerable client systems.

**SWRK 325. SOCIAL WORK & WOMEN IN SOCIETY. (3)** *Prerequisite:* Junior standing or consent of instructor. This course will provide an analysis of women's status and position within our society, based on the premise that women's experiences emerge from society's political, social, and economic structures. Content areas emphasized include women and social change, violence, poverty, men, and feminist change strategies.

**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. Field trips to off-campus locations are required. Students are responsible for providing their own transportation.

**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.

## COURSE DESCRIPTIONS

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### **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. Field trips to off-campus locations are required. Students are responsible for providing their own transportation.

**SWRK 357. CASE MANAGEMENT. (3)** This course introduces students to the fundamental aspects of case management (service coordination), including common case management roles, processes, responsibilities, and employment challenges. Major content areas include: case management roles (including advocate, broker, resource coordinator), the roles and responsibilities of the multidisciplinary team (including nurses, social worker, physicians, and other disciplines), case management with special populations (forensic, geriatric, children, diverse populations), and the responsibilities of a case manager working in health care and mental health settings. Students will be introduced to the employment challenges of case management (types of programs that hire case managers, workforce retention issues, expectations of case manager, and job satisfaction). Students will develop familiarity with how case managers and clients interface with individual, group, and family systems. Students will develop knowledge of case management ethics and explore common ethical dilemmas and boundaries issues that confront case managers.

**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.

**SWRK 381. SOCIAL WORK PRACTICE III. (3)** *Prerequisite:* 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)** *Prerequisite:* 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 437. MILITARY SOCIAL WORK. (3)** This course is designed to increase knowledge and competence in the area of social work services delivered to military personnel, Veterans and their families. Knowledge, values and skills required to work with this special population will be covered, along with evidence-based interventions that would be best suited for this area of social work practice.

**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. (Grading: Pass / Fail)

**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. (Grading: Pass / Fail)

**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- THEATRE DEPARTMENT OF THEATRE AND DANCE (THEA)**

**THEA 101. ACTING I: VOICE AND MOVEMENT. (3)** A foundational acting course designed to help students become aware of, develop, and integrate and properly maintain their natural vocal and kinesthetic performing abilities. Restricted to theatre majors and minors.

**THEA 141. STAGE MAKEUP. (1)** Fundamental theory and application of standard and character stage makeup.

**THEA 151. 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. **Colonnade E-AH | AH**

**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 204. PORTFOLIO PREPARATION WORKSHOP. (1)** Introduction to the process of compiling design and technical resumes and portfolios for the performing arts fields. (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)** *Prerequisite:* 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. Classic vs. contemporary approaches to staging violence will also be covered. Repeatable once for a total of six 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 of instructor.* Students enrolling in this course must also concurrently enroll in a section of Rehearsal and Production. 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: ACTING CRAFT. (3)** *Prerequisites: THEA 101 or permission of instructor.* Improvisation, theatre games, and introductory scene and / or monologue work intended to develop fundamental performance and ensemble collaboration skills.

**THEA 301. ACTING III: CHARACTERIZATION & SCENEWOR. (3)** *Prerequisites: THEA 252, and a "C" or better in THEA 300, or permission of instructor.* An acting studio course focusing on the fundamentals of text and character analysis, characterization, and performance.

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

**THEA 306. MUSICAL THEATRE ENSEMBLE. (1)** Musical theatre vocal ensemble. Repeatable seven times for a total of eight credit hours.

**THEA 307. MUSICAL THEATRE WORKSHOP I. (3)** *Prerequisite: THEA 101 or permission of instructor.* Practice in integrating singing, acting, and movement using musical theatre repertoire from 1920 to present. Repeatable twice for up to 9 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)** *Prerequisites: 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 323. PERIOD STYLES IN DESIGN. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* The study of aesthetic styles as general artistic principles and in costume and décor applications. Emphasis on design as communication across cultures and time periods. No prerequisites required, but taking an introductory art and / or design course in any field before taking this course is recommended. **Colonnade K-SC**

**THEA 324. APPLIED VOCAL STYLES I. (1)** *Prerequisites: Admission to the BFA-Music Theatre Concentration and sophomore standing.* Topic-based individual or small group instruction in applied vocal styles for the theatre. Repeatable once for a total of 2 credits.

**THEA 325. THEATRE IN EDUCATION. (3)** An overview of strategies for teaching theatre to students in grades K-12. Topics covered include curriculum development, creative dramatics, arts integration, and assessment.

**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 341. CULTURE AND PERFORMANCE. (3)** *Prerequisite: 21 hours of Foundations and Explorations Courses, or junior status.* Survey of world theatre exploring how the aesthetics of theatrical performance reflect and influence cultural and social norms across world cultures, both historically and in current practice. **Colonnade K-SC**

**THEA 354. HISTORY OF DRAMA TO 1640. (3)** *Prerequisite: Colonnade Category F-AH.* A comprehensive course which traces the major developments in drama from the ancient Greeks to 1640. Emphasis is placed on representative dramatists and plays. Equivalent to ENG 354.

**THEA 355. HISTORY OF DRAMA SINCE 1640. (3)** *Prerequisite: Colonnade Category F-AH.* A continuation of THEA 354. Equivalent to ENG 355.

**THEA 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. Equivalent to ENG 358.

**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 365. US THEATRE HISTORY. (3)** Survey of US theatre history, with a focus on the 20<sup>th</sup> 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 nine credit hours.

**THEA 380. DIRECTING II. (3)** *Prerequisites: 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 II. (1)** *Prerequisite: Instructor permission.* Topic based individual or small group instruction in applied vocal styles for the theatre. Repeatable five times for a total of six credit hours.

**THEA 391. THEATRE FOR YOUNG AUDIENCES. (3)** *Prerequisite: THEA 252 or permission of instructor.* An examination of the selection, preparation, and presentation of plays for children. Emphasis on analysis of plays for young audiences, 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. (3)** *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 nine 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 414. ACTING IV: ADVANCED SCENE STUDY. (3)** *Prerequisite: THEA 301, or permission of instructor.* An advanced acting course focusing on the application of advanced character analysis, characterization and style to intensive scene work. Repeatable twice for credit.

**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.

## COURSE DESCRIPTIONS

**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 430. MUSICAL THEATRE HISTORY. (3)** *Prerequisite: THEA 252 or permission of instructor.* Survey of U.S. musical theatre history from the 18<sup>th</sup> century to the present, with an emphasis on the 20<sup>th</sup> century to the present.

**THEA 431. MUSICAL THEATRE REPERTOIRE. (3)** *Prerequisite: THEA 300, MUS 100, MUS 350, or permission of instructor.* A performance-based study of musical theatre repertoire and vocal styles from 1920 to present day using both scripts and scores. Performance work will occur in solo and small group settings. **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)** *Prerequisites: ENG 100 and ENG 200 or any other course in Colonnade F-AH.* This course deals with the development of American drama from colonial productions to present-day plays. Equivalent to ENG 455.

**THEA 459. MODERN DRAMA. (3)** *Prerequisites: Colonnade F-AH.* A selected study of dramatic literature since Ibsen, with emphasis on evolving developments and trends in world theatre. Equivalent to ENG 459.

**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 SCHOOL OF PROFESSIONAL STUDIES

**UC 100. COLLEGE AND CAREER DEVELOPMENT SEMINAR. (1)** Investigation of academic and career choices and the relationship between the two. Open only to non-degree seeking students prior to high school graduation. (Grading: Pass / Fail)

**UC 175 / UCC 175C. UNIVERSITY EXPERIENCE. (3)** *Special Requirements: For students with fewer than 36 semester hours or permission of instructor.* Topics include: Critical thinking, information and technology literacy, exploration of majors and careers, study skills, personal development and campus resources information.

**UC 176 / UCC 176C. SPECIAL TOPICS. (1)** *Prerequisite: Permission of instructor.* Exploration of a particular topic; varies by instructor and section. Repeatable for a maximum of 3 hours. (Grading: Pass / Fail)

**UCC 200C. INTRODUCTION TO AMERICAN ACADEMIC CULTURE. (3)** Open to international non-native / English-speaking students with graduate student status; or with instructor permission. A course for international non-native / 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)** *Prerequisites: UCC 250C and instructor permission.* Supervised mentoring experience in an appropriate first-year student setting. Students may repeat this course up to a maximum of three credit hours. (Grading: Pass / Fail)

**UC 400. FACULTY-MENTORED UNDERGRADUATE STUDENT RESEARCH EXPERIENCE. (1)** *Prerequisites: Award of FUSE (Faculty Undergraduate Student Engagement) Grant from the Office of Academic Affairs and instructor permission.* Students participate in a semester-long research / creative activity experience mentored by a faculty member, which is expected to lead to a presentation / performance of the research / creative work at an appropriate venue at a later date. Participants must also attend an orientation session and a follow-up session sponsored by the Office of Scholar Development. Repeatable up to two times for a maximum of three credit hours.

### UM – WATER UTILITIES MANAGEMENT DEPARTMENT OF GEOGRAPHY AND GEOLOGY

**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.

**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.

### UX – USER EXPERIENCE DEPARTMENT OF COMMUNICATION

**UX 320. USER EXPERIENCE DESIGN. (3)** *Prerequisites: AD/SJB 210 with a grade of "C" or better, or permission of instructor.* Integrates research, design and creative ideation to produce effective visual interactive user experiences across multiple media platforms. **Course Fee**

**UX 330. INTERACTIVE DESIGN. (3)** *Prerequisite: AD/SJB 210 with a grade of "C" or better or instructor permission.* Exploration into the design process and techniques for creating interactive experiences. Encompasses information architecture, usability, front-end programming, design literacy, as well as applied user-experience design. Equivalent to SJB 330.

**UX 340. PROGRAMMING FOR MEDIA PLATFORMS. (3)** *Prerequisite: AD/SJB 210 with a grade of "C" or better or permission of instructor.* Introduction to concepts, principles, and skills required to code and program media platforms. Explores modern markup languages and content management systems. No programming experience required. Equivalent to SJB 340. **Course Fee**

**UX 350. PROGRAMMING FOR DESIGNERS. (3)** *Prerequisites: UX 320, SJB 330 and SJB 340; or permission of instructor.* An advanced interactive coding course utilizing markup languages required for control of interactive media products and user experiences. **Course Fee**

**UX 400. ADVANCED INTERACTIVE DESIGN. (3)** *Prerequisites UX 320, UX 330/SJB 330, and UX/SJB 340, all with a grade of "C" or better, or permission of instructor.* Explores advanced CSS3, methods of scripting, use of forms and the implementation of embedded media, with a focus on strategic user design and information architecture. **Course Fee**

**UX 410. PORTFOLIO. (3)** *Prerequisite: UX 400 or permission of instructor.* Students collaborate to research, create and promote websites and/or applications for commercial and non-commercial projects. Synthesizes all elements of user-experience design and branding. Equivalent to AD 410. **Course Fee**

### WFA – WORKFORCE ADMINISTRATION SCHOOL OF PROFESSIONAL STUDIES

**WFA 300. WORKFORCE ADMINISTRATION AND PRACTICE. (3)** A foundational study of systems management and technology from theoretical, managerial and practical perspectives.

**WFA 346. WORKFORCE 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.

**WFA 347. WORKFORCE LINKAGE AND APPLICATIONS. (3)** Introduction to telecommunications, network, and related system issues and applications in an organizational setting.

**WFA 348. WORKFORCE STRUCTURE. (3)** An introduction to the various system architectures common to modern business systems.

**WFA 443. WORKFORCE PLANNING AND ASSESSMENT. (3)** Examination of tools and systems used to support strategic planning and decision making.

**WFA 444. WORKFORCE OPERATIONS AND CONTROL. (3)** Management of the organization's data resources and information flow, including: project management, systems planning, control and operations.

**WFA 446. WORKFORCE REPORTING AND DEVELOPMENT. (3)** Examination of security and risk management in organizational systems. Cost-benefit issues, access, availability and efficiency will be analyzed.

**WFA 447. WORKFORCE PROCESS AND TECHNOLOGIES. (3)** Examination of electronic commerce systems, processes and technologies, and how such systems may be used to develop competitive advantage.

**WTTI – WATER / WASTEWATER TECHNOLOGY  
DEPARTMENT OF GEOGRAPHY AND GEOWAY**

**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 200.* 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, and 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 chemical 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 then applying them in real-life case analysis. Upon completion, students should be able to apply principles of mathematics and hydraulics systems to water management practices.

**WTTI 221. CALCULATIONS 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 CALCULATIONS 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.

## COURSE DESCRIPTIONS

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**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 plant 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)** *Prerequisite: 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.

**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 plant 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) Prerequisite:** WTTI 200.

*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)