### Courses of Instruction

#### ACCOUNTING (009)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>201</td>
<td>Principles of Financial Accounting (3)</td>
<td>Introduction to financial accounting theory and practice with emphasis on preparation and reporting of financial information. Prerequisites: All other courses in accounting. Prereq: Mathematics 110 or 121. E</td>
</tr>
<tr>
<td>202</td>
<td>Principles of Managerial Accounting (3)</td>
<td>Introduction to managerial and cost accounting concepts with emphasis on uses of accounting data by managers in planning operations, controlling activities, and decision making. Prereq: 201. E</td>
</tr>
<tr>
<td>311-312</td>
<td>Intermediate Financial Accounting (3,3)</td>
<td>Theory, principles, and procedures related to valuation of assets, liabilities, and equities; measurement of periodic income; and preparation of financial statements. Prereq: 202 for 311 and 311 with a grade of C or better. Management 303 for 312. E</td>
</tr>
<tr>
<td>321</td>
<td>Cost and Managerial Accounting (3)</td>
<td>Analysis of costs, assets, liabilities, and equities; measurement of periodic income; and preparation of financial statements. Prereq: 202 for 311; and 311 with a grade of C or better.</td>
</tr>
<tr>
<td>341</td>
<td>Accounting Information Systems (3)</td>
<td>Development and use of accounting information systems for collection, organization, and distribution of economic information about organizations for internal and external decision making. Major exam may be given during the last class meetings. F, Sp</td>
</tr>
<tr>
<td>411</td>
<td>Auditing (3)</td>
<td>Role of auditing in society, operational auditing, professional auditing standards, auditor's legal responsibilities, audit evidence and reporting, and control and statistical sampling in auditing. Applications to specific transaction cycles. Prereq: 312 with a C or better. 341, F, Sp</td>
</tr>
<tr>
<td>414</td>
<td>Advanced Accounting (3)</td>
<td>Issues and alternatives in advanced theory and problem areas including financial accounting theory, partnership accounting, business combinations, consolidated financial statements, and not-for-profit accounting. Major writing requirement. Prereq: 312 with a C or better. E</td>
</tr>
<tr>
<td>431</td>
<td>Federal Income Taxation (3)</td>
<td>Fundamentals of gross income, deductions, credits, and tax determination. Introduction to taxation of corporations and partnerships. Prereq: 311 with a C or better, or consent of instructor. F, Sp</td>
</tr>
<tr>
<td>340</td>
<td>Advertising Research Methods (3)</td>
<td>Secondary data and primary research techniques for advertising decisions. Prereq: 250 with a grade of C or better and Statistics 201.</td>
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<tr>
<td>350</td>
<td>Advertising Creative Strategy (3)</td>
<td>Basic concepts of creative strategy with intensive practice in developing creative platforms, writing and designing advertisements, and judging creative work. Prereq: 250 with a grade of C or better.</td>
</tr>
<tr>
<td>360</td>
<td>Advertising Media Strategy (3)</td>
<td>Assessment of markets, vehicle audiences and mathematical techniques for advertising planning, instruction in media planning, buying, and evaluation. Prereq: 340 with a grade of C or better.</td>
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#### ADVERTISING (012)

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<th>Course Code</th>
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<tbody>
<tr>
<td>250</td>
<td>Advertising Principles (3)</td>
<td>Survey of the role of advertising in American business and society. Relationship between advertising and marketing: functional components of the advertising process: research, media, creative, and management.</td>
</tr>
<tr>
<td>340</td>
<td>Advertising Research Methods (3)</td>
<td>Secondary data and primary research techniques for advertising decisions. Prereq: 250 with a grade of C or better and Statistics 201.</td>
</tr>
<tr>
<td>350</td>
<td>Advertising Creative Strategy (3)</td>
<td>Basic concepts of creative strategy with intensive practice in developing creative platforms, writing and designing advertisements, and judging creative work. Prereq: 250 with a grade of C or better.</td>
</tr>
<tr>
<td>360</td>
<td>Advertising Media Strategy (3)</td>
<td>Assessment of markets, vehicle audiences and mathematical techniques for advertising planning, instruction in media planning, buying, and evaluation. Prereq: 340 with a grade of C or better.</td>
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#### AFRICAN AND AFRICAN-AMERICAN STUDIES (022)

<table>
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<th>Course Code</th>
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<tbody>
<tr>
<td>201</td>
<td>Introduction to African-American Studies (3)</td>
<td>Multidisciplinary approach to the African-American experience through the Civil War period which examines such issues as traditional African societies, the institution of slavery, the development of African-American culture, the beginnings of African-American protest tradition, and the Civil War and Reconstruction.</td>
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202 Introduction to African-American Studies (3) Multidisciplinary approach to the African-American experience from the Civil War through the Civil Rights era which focuses on such topics as African-American rural and urban societies, the African-American church and education and African-American intellectual and protest movements. 211 Introduction to African Studies (3) Multidisciplinary approach to the study of African traditions, cultures, religions, political economies, precolonial democracies, and states form the first through the sixteenth century. 212 Introduction to African Studies (3) The Multidisciplinary study of Africa and its incorporation into the world economy between the sixteenth and the twentieth century. Includes the role of nationalism, post-colonial dependency, contemporary problems, and current liberation struggles in various areas of the continent. 310 Introduction to African-American Music (3) (Same as Music History 310.) 314 Peoples and Cultures of Africa (3) (Same as Anthropology 314.) 315 African-American Anthropology (3) (Same as Anthropology 315.) 319 Caribbean Cultures and Societies (3) (Same as Anthropology 319 and Latin American Studies 319.) 322 Minority Group Politics in the United States (3) (Same as Political Science 322.) 343 Race and Ethnicity (3) (Same as Sociology 343.) 350 History of Jazz (3) (Same as Music History 350.) 352 African-American Religion in United States (3) (Same as Religious Studies 352.) 353 Topics in African-American Religion (3) (Same as Religious Studies 353.) 364 Contemporary Issues in African-American Education (3) (Same as Sociology 364.) 371-372 African History (3,3) (Same as History 371-372.) 373 African Religions (3) (Same as Religious Studies 373 and Anthropology 373.)
source management problems including food and erosion control, drainage, and water quality. Prereq: Plant and Soil Science 120, Coro 341. Same as Plant and Soil Science 312, S.


400 Professional Development (1) Engineering ethics; professional opportunities for professional development and continuing education. 1 hour. F

403 Engineering Design Fundamentals (3) Nature of design, functional analysis, creativity, analyses and synthesis; geometric and kinematic requirements; plane mechanisms, designs, drawings, design, analysis and applications to design project. Prereq: Senior standing. Design content: 3 hours. 1 hour and 2 labs. F

413 Component Design and Machine Synthesis (3) Synthesis of design; structural, kinematic, power, control system design; preparation of design drawings, specifications, model of device, written and oral report on design. Design content: 3 hours. Prereq: 403. 1 hour and 2 labs. Sp

423 Irrigation and Waste Management System Design (3) Design of irrigation and agricultural waste management systems with consideration given to live stock waste characteristics, and impact on crop yield and water quality. Design content: 3 hours. Prereq: 340, 341. 1 hour and 2 labs. F

430 Mobile Hydraulic Power System Design (2) Functional and operational characteristics of mobile hydraulic systems including pumps, valves and actuators; analysis and synthesis of power transmission and control circuits. Prereq: Engineering Science and Mechanics 341, 1 hour and 1 lab. Sp, AO

433 Food and Bioprocessing System Design (3) System design for processing, handling, and storage of food and biological materials. Mass and energy balances, product characteristics, equipment specifications, economic analysis, safety and human factors considerations. Design content: 3 hours. Prereq: 311. 1 hour and 2 labs. Sp

451 Electronic Systems (4) Basic electronics with biological applications. Analog and digital electronics, sensing and controlling physical and environmental parameters; sensor selection and interfacing; signal conditioning; process control. Includes laboratory experiments and design projects. Design content: 1 hour. Prereq: Electrical and Computer Engineering 301, 3 hours and 1 lab. Sp

470 Special Problems in Agricultural Engineering (1-3) Selection, analysis solution and report of problem. May be repeated. E

480 Selected Topics in Agricultural Engineering (1-3) Current trends and problems in agricultural engineering. May be repeated. E

AGRICULTURAL ENGINEERING TECHNOLOGY (067)

202 Materials and Fabrication (3) Properties of materials including wood, metals, concrete, plastics and lubricants; drafting and planning, fabrication techniques and processes involving hand tools, power equipment, and air and gas welding. 1 hour and 2 labs. Sp

212 Surveying (3) Measurement of distances, angles, and areas; differential and precise leveling; topographic surveying and map making; computer computation. Prereq: Math 109 or consent of instructor. 1 hour and 1 lab. F

422 Food and Process Engineering Technology (3) Application of basic engineering principles to agricultural and food processes. Fluid handling, drying, evaporation and cooling, heating and cooling, refrigeration systems, and materials handling. Prereq: Physics 121, Mathematics 121, 2 hours and 1 lab. F

432 Agricultural Machinery and Tractors (3) Agricultural machines and tractors: adaptation to agricultural practices; management considerations; field efficiencies; capabilities; adjustment and servicing. Prereq: Mathematics 121, 2 hours and 1 lab. Sp

442 Agricultural Waste Management and Pollution Control (3) Waste management and pollution characteristics of animal management, techniques for collecting, transporting, storing, and utilizing livestock waste. Prereq: Mathematics 121, 2 hours and 1 lab. F

452 Small Internal Combustion Engines (3) Theory, concepts and mechanics of small engines and engines. Prereq: Physics 121 or consent of instructor. 2 hours and 1 lab. Sp

462 Agricultural Chemical Application Technology (3) Equipment for application of liquid, solid, and gaseous agricultural chemicals; component systems; operational characteristics; calibration; control and management; safety considerations; materials handling and disposal methods. Prereq: Physics 121 or consent of instructor. 2 hours and 1 lab. Sp

AGRICULTURE (088)

101 Perspectives in Agriculture and Associated Natural Resources (3) Historical development, current national and international issues, and trends for the future. 3 hours.

290 Microcomputer Applications to Problem Solving (3) Use of the microcomputer to analyze and report problems related to agricultural sciences and natural resources. Introduction to word processing, spreadsheets, data bases, presentation graphics, and other applications software as needed for problem analysis and reporting. 2 hours and 1 lab. F

317 Agriculture and Natural Resources Honors Seminar (1) Discussion of selected topics, issues and problems influencing national and international food, agriculture and natural resources systems. Primarily for College Scholars students. May be repeated. Maximum of 8 hours. Satisfactory/No Credit only. F, S

400 Agricultural Management Systems Analysis (3) Interdisciplinary management oriented course for the application of systems analysis to planning and operation of farm businesses. Team work, analysis and synthesis of technical knowledge to a practical farm situation and evaluation of interrelationships among various subsystems. Open to juniors and seniors by invitation only.

AIR FORCE AEROSPACE STUDIES (094)


103-104 Leadership Laboratory (1,1) Initial leadership experiences and orientation to active duty. Instruction in: drill and ceremonies; Air Force customs and courtesies; leadership in the Air Force as a profession; the environment in which the Air Force officer works. Coreq: 101-102. Satisfactory/No Credit only.

201-202 Air Force Aerospace Studies (1,1) Introduction to study of air power from a historical perspective starting before the Wright Brothers and continuing into the 1980s. 1 hour and 1 lab. Sp

203-204 Leadership Laboratory (1,1) Intermediate leadership experiences and orientation to active duty. Instruction in: teaching/participating drill and ceremonies; analysis of leadership situations; the Airman as a professional; the environment in which the Air Force officer works, and preparation for field training coreq: 201-202. Satisfactory/No Credit only.

205 Field Training (Academic Program) (1-4) Role of United States military forces in contemporary world with particular attention to United States Air Force, its organization and mission, mission of various component forces of U.S. military. Emphasis on mission, function, substructures, policies of major powers, and elements and processes in making of defense policy. Conducted at Field Training bases throughout the country. Open only to two year program applicants.

301-302 Air Force Aerospace Studies (3,3) Air Force leadership at junior officer level, including theoretical, professional, and legal aspects, with attention to communications, skills, military management functions, principles, and techniques. Prereq: Air Force ROTC approval and completion of either 205 or 101-104, 201-204, Coro 303-304.

401-402 Air Force Aerospace Studies (3,3) Role and function of professional officer in a democratic society, socialization process, public attitudes, and value orientations associated with professional military service; requisites for maintaining national security forces; decision-making processes of Department of Defense; political, economic, and social constraints affecting formulation of U.S. defense policy; impact of technological and international developments upon strategic preparedness; emphasis on development of communications skills. Prereq: Air Force ROTC approval and completion of 301-304. Coro: 403-404.

AMERICAN STUDIES (099)

310 Introduction to American Studies (3) Explores dynamics and nature of the culture of the United States through interdisciplinary study and interpretation. Considers both "mainstream" and "minority" cultures. Writing emphasis course.

312 Popular Culture and American Politics (3) (Same as Political Science 312.)

334 Film and American Culture (3) (Same as Cinema Studies 334 and English 334.)

343 Race and Ethnicity (3) (Same as Sociology 343.)

345 Collective Behavior and Social Movements (3) (Same as Sociology 345.)

385 Religion and Culture in the United States (3) (Same as Religious Studies 385.)

380 American Issues: War and the Peaceful Ideal (3) (Same as History 380.)

381 Introduction to Folklore (3) (Same as English 381.)

410 Topics in American Culture (3) Content varies. May be repeated once.

420 Political Attitudes and Opinions (3) (Same as Political Science 420.)

440 America: Mind, Mood, and Society (3) (Same as History 440.)

442 American Humor (3) (Same as English 442.)

455 Local and Regional History (3) (Same as History 455.)

465 History of Sports in the United States (3) (Same as History 465.)

469 Freedom of Speech (3) (Same as Speech Communication 469.)

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

ANIMAL SCIENCE (113)

101 Orientation to Animal Science (1) For Animal Science majors and Prevet students in their first year. Discussion of student services, activities, and careers; student participation in planning the college experience. Satisfactory/No Credit. F, Sp

220 Anatomy and Physiology of Farm Animals (3) Skeletal and joints; muscles; blood and microcirculation; reproductive, urinary, digestive, endocrine, cardiovascular, respiratory, and nervous systems; demonstrations of physical-chemical phenomena. Prereq: Biology 120. 2 hours and 1 lab. F


290 Farm Animal Management Practices (3) Integration of herd/flock management practices into cattle, horse, pork, sheep, and swine enterprises. Application of animal behavior knowledge to care of animals, including facilities and restraint. Includes age and sex determination, pre- and post-natal care, identification, dehorning, castration, docking, implanting, dubbing, foot
482. Dairy Cattle Production and Management (3)
Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. Structure of industry, enterprise establishment, systems of production, production practices, and improvement programs. Management evaluated in terms of production responses and economic returns. Prereq: Completion of Animal Science sophomores and junior core courses or consent of instructor. 2 hours and 1 lab. F

483. Pork Production and Management (3)
Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. Structure of industry, enterprise establishment, systems of production, production practices, and improvement program. Management evaluated in terms of production responses and economic returns. Prereq: Completion of Animal Science sophomores and junior core courses or consent of instructor. 2 hours and 1 lab. F

484. Poultry Production and Management (3)
Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. Structure of industry, enterprise establishment, systems of production, production practices, and improvement programs. Management evaluated in terms of production responses and economic returns. Prereq: Completion of Animal Science sophomores and junior core courses. 2 hours and 1 lab. Sp

485. Horse Production and Management (3)
Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. Types of enterprises, management of feed and pasture resources, health maintenance and first aid, breeding and health and breeding, equine anatomy. Prereq: consent of instructor. 2 hours and 1 lab. F

486. Lamb and Wool Production and Management (3)
Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. Structure of industry, enterprise establishment, systems of production, production responses and improvement programs. Management evaluated in terms of production responses and economic returns. Prereq: consent of instructor: 2 hours and 1 lab. F

489. Companion, Zoo and Lab Animal Management (3)
Principles of nutrition, physiology, breeding, handling, and history of breeds of common household pets, zoo animals and animals used in scientific research. Specific species requirements and peculiarities. Laws and agencies governing use of laboratory animals. Laboratory analysis of blood metabolites commonly used to monitor health and nutritional status. Prereq: Consent of instructor: 2 lectures and 1 lab. Sp - AO

492. Animal Science Field Study (1-6)
Off-campus work experience approved by instructor. Prereq: permission of instructor and Department Head. Writing-emphasis course.

493. Independent Study in Animal Science (1-3)
Approved supervised study in areas not formally organized in a course offered in the department. Written proposal of study is approved by the Department of Animal Science Undergraduate Committee. After completion of study, a written report is required and this report is maintained on file in the reference room of the department. May be repeated for a maximum of 6 credits. Prereq: Senior standing and consent of instructor and Department Head. E

494. Animal Science Teaching Assistant (1)
Assist the primary instructor in laboratory instruction and demonstrations. Prereq: Senior standing and consent of the instructor and Department Head. E

495. Seminar (1)
Review of literature and oral and written presentation on special topics and current research in Animal Science field. Prereq: Senior standing. One 2 hour lab. F

496. Veterinary Medical Technology (1)
For Animal Science and/or Animal Science Pre-Veterinary Medicine Majors only. Consent of the instructor and completion of at least 60 credit hours. Students will observe and assist in the diagnosis and treatment of small animal diseases and medical problems. Prereq: Consent of the instructor and completion of at least 60 credit hours. One lab. Sp

ANTHROPOLOGY (122)

110 Human Origins (3) Survey of humanity's background, fossil primates, fossil human remains, and living races of mankind.

120 Prehistoric Archaeology (3) Introduction to methods and techniques used to study the development of prehistoric archaeo-

130 Cultural Anthropology (3) Major concepts and methods in the study of culture; survey of cross-cultural similarities and differences; systems of belief, social organization, economic, political, and religious institutions, language, ideology and art. Contributions of anthropology to resolving contemporary human problems.


220 Prehistory of Tennessee (3) History of archaelogical research in Tennessee and survey of prehistoric Indian cultures from initial occupation of the state to European contact.

302 Anthropology of Religion (3) Same as Religious Studies 302.

306 Genetics and Society (3) Same as Botany 306.

310 North American Indians (3) Comparative overview of Indian cultures of North America. Topical coverage ranges from prehistory and aboriginal lifeways to problems resulting from contact and acculturation. Writing-emphasis course.

311 Southeastern Indians (3) Survey of Southeastern North American Indian cultures at the time of European contact. Emphasis on Cherokee culture and on the social, economic, and religious organization of aboriginal groups. Prereq: 130 or consent of instructor.

312 Appalachian Culture (3) Traditional Southern Appalachian subsistence patterns and economy, social organization, beliefs and values, folklore and customs, socio-cultural impacts of industrialization and modernization. Prereq: 130 or consent of instructor. Writing-emphasis course.

313 Peoples and Cultures of Mesoamerica (3) Pre-Columbian and Hispanic cultures of Mexico, Guatemala, Belize, El Salvador and Honduras. Patterns of cultural continuity and cultural change throughout Mesoamerica's history. Prereq: 130 or consent of instructor. Same as Latin American Studies 313. Writing-emphasis course.

314 Peoples and Cultures of Africa (3) Same as African-American Studies 314.

315 African-American Anthropology (3) Same as African-American Studies 315.

316 Alcohol, Health and Culture (3) Socio-cultural perspectives and consequences of alcohol use/abuse in various cultural groups.

319 Caribbean Cultures and Societies (3) Anthropological approaches to key aspects of Caribbean history, socio-cultural pluralism, racial and class stratification, patterns of economic development, and local and national political processes. Prereq: 130 or consent of Instructor. Writing-emphasis course. (Same as African and African-American Studies 319 and Latin American Studies 319.)

320 American Cultures (3) Anthropology in the study of our own society, including such topics as ethnic communities, social classes, power structures, etc. Writing-emphasis course.

360 North American Prehistory (3) Prehistoric cultures of North America from emergence of the continent to European contact. Writing-emphasis course.

361 Historical Archaeology (3) Historical archaeology of Euro-American, African-American, and Asian American cultures in the United States from 15th to 20th centuries.

362 Principles of Anthropology (3) Research strategies for developing meaningful interpretations of cultural histories, identifying site function and settle-
461 African Prehistory (3) African cultural history from the earliest evidence of human activity to the time of European contact. Emphasis on the stone age of Africa south of the Sahara. Prereq: 120 or consent of instructor. (Same as African-American Studies 461.)
419 American Architecture I (3) Development of North American architecture from arrival of immigrants in 1607 until 1860
420 American Architecture, 1840 - 1940 (3) Stylistic periods from the Gothic Revival through the Twentieth Century
421 History of Landscape Architecture (3) Intercultural, societal, and geographical influences which provide the theoretical basis for design throughout history. Selected examples of landscape architecture analyzed in terms of major design movements.
422 Modern Eastern European Architecture (3) Twentieth-century architecture in Russia, Czechoslovakia, Poland, Hungary, East Germany, Romania, Bulgaria, Yugoslavia
425 Special Topics in Architecture (1-4) Individual projects under faculty sponsorship. Credit adjusted to project complexity and level of effort. May be repeated. Maximum credit 6 hours. E
426 Special Topics in History, Theory and Criticism (1-4) Special topics in history-related subjects. May be repeated. Maximum credit 6 hours.
431 Structural and Mechanical Applications (4) Analysis and selection of structural and mechanical systems for a specific case study to integrate technical information into a unified design solution. Prereq: 332, 342. Coreq: 471. F
443 Building Energy Analysis (3) Balancing heat flow through external walls, roofs, and windows of large commercial buildings; local climate evaluation; site planning; building size and orientation, window area, wall treatment, infiltration control. Energy use quantification methods and economic analysis of energy efficient design features. Architectural program analysis of external and internal load dominated buildings. Prereq: 341.
444 Advanced Environmental Control Systems (3) In-depth analyses and innovative concepts in design of heating, ventilating, and air conditioning. Prereq: 341.
445 Advanced Lighting (3) In-depth analysis and innovative concepts in design of lighting. Prereq: 342.
462 Professional Practice (4) Management and organizational theories and practices for delivering professional design services. Included are assessment of the building industry and its influence on practice; analysis of the basic management functions within professional firms; and legal and ethical concerns facing practitioners today. Special obligations and privileges of the design professional. Sp
463 Architectural Development (3) Principles and practice of the architect as a developer. Impact of economics, finance and urban policy on the design and development of real estate. Open to all students.
466 Marketing Services (3) Theories of marketing for architectural practice. Case studies. Public relations procedures.
472 Architecture Design VI (6) Order and form in complex buildings developed to address programmatic, structural, energy and environmental issues. Prereq: 471. Sp
473 Architectural Photography (3) Photogaphy as a design, research, and presentation medium. Application of photographic techniques, printing and processing. Color, black and white.
480 Comprehensive Design Project I (3) Project selection and preparation for Architecture 482. Formation and documentation of hypotheses. Preparation of background and program information. Goals and concepts set forth. To be taken semester immediately preceding 482. F
481 Advanced Architectural Design Topics (6) Faculty initiated design projects. Advanced architectural topics not covered under 483, 484, 485, 486, or 489. Prereq: 472. F
482 Comprehensive Design Project II (6) Student selected project under faculty direction. Exploration of design hypothesis which informs the character of substantial building design. (See Architecture 480.) Completed project will address all issues of environment, structure, structure, use, and ethical consideration of design appropriateness. Design is expected to stand up to rigorous scrutiny regarding strength of idea, economy of means, durability, validity for stipulated quality of cultural expression, and character of setting. Prereq: 480 and satisfactory completion of all design courses. Sp
483 Urban Design (6) Urban design projects responding to specific community conditions. Exploration of urban challenges in making and understanding the architecture of the city. Prereq: 472. F
485 Development and Design (6) Exploration of image making, consumerism and the allocation of scarce resources. Issues of finance, economics, urban economics, and marketing are analyzed in relation to urban and architectural design. Application of financial feasibility models. Prereq: 472 and 463 or consent of instructor. F
486 Design of Sustainable Architecture (6) Architectural design studio emphasizing concern for the environment and consideration of energy conservation techniques, and use of renewable resources. Prereq: 472. F
489 Structural Innovations (6) Building design with innovative structural configuration and technology. Exploration of new materials, detailing, and methods in building construction. Prereq: 472. F
491 Foreign Study (1-15) Research and design projects conducted in various locations abroad. Prereq: 372. Coreq: 471.
492 Off-Campus Study (1-15) Studies conducted under direction of architect or expert in an allied profession, in service to public service organizations or agencies of government, and public groups. Not a Design Course elective.
493 Independent Study (6) Faculty initiated studies and projects which are approved by the dean and conducted in a studio. May be repeated once. Prereq: Consent of dean. E

ART (140)

101 Studio Fundamentals: Drawing and Design (2) Introduction to basic drawing concepts and principles and to the elements and principles of pictorial organization.
103 Studio Fundamentals: Three Dimensional Design (2) Projects dealing with real space and three dimensional materials. Primarily for art, architecture, art education, and interior design and housing majors.
151 History of Graphic Design/Illustration (2) Major movements and pivotal artists/designers/illustrators/art directors, 1850 to the present, and their impact on current graphic design trends. (Does not apply to art history requirement.)
171 Introduction to Twentieth Century Art (3) History of development of modern art from Surrealism through Abstract Expressionism, Pop Art, Post-Partly Art Abstraction, Op Art, Kinetic Art, Happenings, Conceptual Art, Minimal Art, and Super Realism.
172 Western Art (3) Major monuments in Western Art with emphasis on Europe from prehistory through the Middle Ages. Writing-emphasis course.
173 Western Art (3) Major monuments in Western Art with emphasis on Europe from prehistory through the Middle Ages. Writing-emphasis course.
183 Asian Art (3) Art of Central and Southeast Asia, India, China, Korea, and Japan from prehistory through contemporary forms and modern media. Writing-emphasis course.
189 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For
201 Two-Dimensional Fabric (3) Mixed media approach for concepts and techniques. Dye, solvent transfer printing, direct, indirect dyeing, drawing/painting, media, hand/machine stitching.

202 Two-Dimensional Fiber (3) Mixed media approach for woven imagery. Tapestry/non-tapestry methods, traditional/traditional, traditional, small scale works.


209 Special Topics in Fiber and Fabric (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 6 hours.


212 Drawing II: Life Drawing (3) Development of drawing and observational skills with special emphasis on structure and dynamics of the human figure and of the figure in environment. Prereq: 211. May be repeated. Maximum 6 hours.

213 Painting I: Introduction (3) Capacities of oil and acrylic painting on canvas. Prereq: 101, 103 for art majors; none for non-art majors.

214 Painting II (3) Techniques of expression in oil and/or acrylic. Prereq: 213 for art majors; 191-Painting for non-art majors. May be repeated. Maximum 8 hours.


216 Watercolor II (3) Capacities of transparent watercolor, with attention to individual exploration of surface, space, and concept. Prereq: 215 for art majors; Art 191-Watercolor for non-art majors. May be repeated. Maximum 6 hours.

219 Special Topics in Drawing/Painting (3) Student or instructor-initiated course offered at convenience of department to enhance and expand the painting, drawing, and watercolor curriculum. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

221 Ceramics I: Handbuilding (3) All ceramic handbuilding techniques including forming methods, glazing, clay preparation, firing, and large scale pieces. Ceramic history through modern. Prereq: Determined by department.

222 Ceramic II: Throwing (3) Thrown ceramic forms including functional utilitarian pottery techniques, glazing and firing methods. Prereq: 221 for art majors; 191-Ceramics for non-art majors.

229 Special Topics in Ceramics (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

231 Photography I (3) Art of black and white photography. Field and studio shooting, history of photography, basic developing, and enlarging techniques.

239 Special Topics in Photography (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

244 Wood Sculpture I (3) Wood as sculptural medium. May include use of hand and power tools, carving, and construction.

245 Steel Sculpture I (3) Problems to introduce steel as a material for the creation of sculpture. Development of welding techniques.

246 Mixed Media Sculpture I (3) Use of two or more materials, and a variety of sculptural techniques, joined to create dimensional form. May include carving, molding, construction, and found objects.

248 Special Topics in Sculpture I (3) Student on instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

251 Beginning Graphic Design I (3) Introduction to typographical, layout and creative problem solving. Survey of graphic design tools, materials and techniques with emphasis on professionalism. Prereq: 101, 103, 151.

252 Beginning Graphic Design II (3) Continuation of typography, layout and creative problem solving; and introduction to production techniques with emphasis on professionalism. Prereq: 251.

256 Individual Projects in Graphic Design/Illustration (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

259 Special Topics: Graphic Design/Illustration (3) Student or instructor-initiated course offered at discretion of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

262 Intaglio I (3) Metal plate intaglio printing in traditional and contemporary techniques of etching, softground, drypoint, mezzotint, aquatint, and photolithographing. Prereq: May be repeated. Maximum 6 hours.

263 Lithography I (3) Stone and aluminum plate lithography applying traditional and contemporary techniques of croyon, tusche, transfer methods, and state proofs. Prereq: May be repeated. Maximum 6 hours.

264 Screen Printing I (3) Screen printing as a fine art medium including development and application of various basic stencils in compositional printing. Prereq: May be repeated. Maximum 6 hours.

269 Special Topics in Printmaking (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

279 Special Topics in Art History (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

292 Film Design (3) Introductory theory and practice of film making. Emphasis on graphic elements through use of motion picture camera. (Same as Cinema Studies 292.)

295 Intermediate Design and Color (3) Further exploration of basic techniques of two-dimensional design, with emphasis on color theory and technique. Prereq: 101, 103.

299 Special Topics (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

300 Inter-area Portfolio Review (0) Review of prior studio work. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.


352 Intermediate Graphic Design II (3) Concepts of corporate graphics. Problems include all areas of graphic design and illustration. Prereq: 351.

353 Black and White Illustration (3) Black and white media and techniques as applied to product and editorial illustration. Prereq: 350.

354 Color Illustration (3) Flat and process color media and techniques as applied to product and editorial illustration. Prereq: 353.


356 Introduction to Computer Enhanced Design (1) The computer as a graphic design tool. Prereq or Coreq: 351.

360 Printmaking Portfolio Review (0) Review of prior work in printmaking. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

362 Intaglio II (4) Color intaglio printing from a single metal plate, including a la poupee', chine colle', and relief rolls. Prereq: 262 and 360. May be repeated. Maximum 8 hours.

363 Lithography II (4) Color lithography from stone and plates using mylar registration. Extra techniques, including xerox and monotype transfers, acid etching, reverse printing, chine colle' and photo-lithography. May be repeated. Maximum 8 hours.

364 Screen Printing II (4) Advanced work with basic screen printing techniques including photo screening. Emphasis upon image development and personal concept. Prereq: 264 and 360. May be repeated. Maximum 8 hours.

371 Early Christian and Byzantine Art, to 1350 (3) Art in Italy and the Eastern Empire from the beginnings of Christian art to c. 1350. Mosaic and painting, sculpture and architecture. (Same as Medieval Studies 371.)

372 Northern European Painting, 1350-1600 (3) From courtly art of late Middle Ages to Northern Renaissance. Jan van Eyck, Roger van der Weyden, and Durer; early printmakers. (Same as Medieval Studies 372.)

374 Art of Northern Europe, 1600-1750 (3) Concentrated study of Brueghel, Rubens, Rembrandt, Georges de La Tour, Vermeer, Poussin, and Hals.

381 Medieval Art of the West, 800-1400 (3) Western European art of the "Dark Ages," Romanesque, and Gothic periods. (Same as Medieval Studies 381.)

382 The Art of Italy: 1200-1450 (3) Development of exploration of naturalism. Revival of antiquity and development of perspective in the Early Renaissance. Including Duodo, Giotto, Masaccio, Donatello, Botticelli. (Same as Medieval Studies 382.)


384 Art of Southern Europe: 1575-1700 (3) Concentrated study of Caravaggio, Bernini, and Italian Baroque developments in all media. Spanish Baroque painting and sculpture with special attention to Velazquez.

385 Chinese Art (3) Survey from pre-Shang Dynasty to contemporary movements in China, Taiwan, and Hong Kong. New discoveries are stressed. Writing-emphasis course.

386 Japanese Art (3) Survey from ancient Joran art in clay to the Nihonga painting style of today. Variety of media emphasized. Writing-emphasis course.

392 Advanced Film Design (3-6) Theory and practice of filmmaking. Prereq: 292. (Same as Cinema Studies 392.)

396 Beginning Airbrush (3) Techniques of airbrush drawing; skills and creative applications emphasized. For art majors only.

401 Individual Class Projects in Fabric (4-6) Prereq: 201, 301 or consent of instructor. May be repeated. Maximum 12 hours.

402 Individual Class Projects in Fiber (3) Prereq: 202, 302 or consent of instructor. May be repeated. Maximum 12 hours.

403 History of Photography (3) Survey of the history of photography from the introduction of the daguerreotype and calotype to more recent trends. Emphasis will be placed on aesthetics and the use of photography as a medium for artistic expression.

404 Computer Enhanced Design (3) Exploration of computer systems, software and techniques. Prereq. 356 or consent of instructor. May be repeated. Maximum 6 hours.

405 Advanced Computer Enhanced Design (3) Prereq.: 404 or consent of instructor. May be repeated. Maximum 6 hours.

409 Special Topics in Fiber/Fabric (3) Student or instructor-initiated course to be offered at convenience of department. Prereq: Determined by department for individual topic. Maximum 12 hours.

411 Drawing IV (6) Individualized approach to personal drawing. Emphasis upon individual and group critiques and weekly life drawing sessions. Prereq.: 311. May be repeated. Maximum 12 hours.

413 Painting IV (6) Advanced painting stressing individual concepts and personal expression with varied media. Prereq.: 313. May be repeated. Maximum 12 hours.

415 Watercolor IV (6) Advanced painting with water-based media on paper stressing individual concepts and personal approaches. Prereq.: 315. May be repeated. Maximum 12 hours.

419 Special Topics in Drawing and Painting (3) Student or instructor-initiated course offered at convenience of department to expand and enhance the painting and drawing, and watercolor curriculum. Prereq. Determined by department for individual topic. May be repeated. Maximum 12 hours.

421 Ceramics: Individual Projects (3-6) Special topic each semester: e.g., low fire ceramics, alternative firing methods, specialized clay techniques. Individual direction stressed. Prereq.: 321 and 322. May be repeated. Maximum 12 hours.

422 Ceramics: Advanced Projects (3-6) Each student is responsible for development of image and personal concept using appropriate methods, materials and presentation. Prereq.: 421. May be repeated. Maximum 12 hours.

423 Ceramics: Surface Design (3) High and low fire glaze techniques. Use of stains, slips, underglazes, airbrush, and lusters, etc. Relationship between form and surface emphasized. Individual direction expected. Prereq.: 321 and 322.

424 Ceramics: Clay and Glasses (3) Clay chemistry, clay bodies, glaze chemistry, glaze calculation, intensity formulating, mixing and testing of clay bodies and glaze formulas. Prereq.: 321 and 322.

425 History of Ceramics Seminar (3) Survey of the historical development of ceramics art from ancient through contemporary. Emphasis on ceramics sculpture, and the vessel aesthetic. Solder lectures and individual presentations. (Does not apply toward art history requirement.) Prereq.: 321 and 322.

426 Kilns: Design, Construction and Operation (3) Designing kilns, traditional and modern refractories, construction methods, and operation of wood, gas and electric kilns. Prereq.: 321 and 322.

429 Special Topics in Ceramics (3) Student or instructor-initiated course offered at convenience of department. Prereq.: Determined by department for individual topic. May be repeated. Maximum 12 hours.

431 Photography III (3-6) Individual development of photographic problems and techniques. Prereq.: 232 and 331. May be repeated. Maximum 12 hours.

439 Special Topics in Photography (3) Student or instructor-initiated course offered at convenience of department. Prereq.: Determined by department for individual topic. May be repeated. Maximum 12 hours.

441 Advanced Sculpture (3-6) Individual development of sculptural problems and techniques. Prereq.: 6 hours of 300 level sculpture. May be repeated. Maximum 12 hours.

449 Special Topics in Sculpture (3) Student or instructor-initiated course offered at convenience of department. Prereq.: Determined by department for individual topic. May be repeated. Maximum 12 hours.


452 Advanced Graphic Design 2 (3) Advanced investigation into visual systems and their impact on visual design. Prereq.: 451.

453 Advertising Illustration (3) Concepts of advertising media and techniques as applied to project illustration. Prereq.: 354.

454 Editorial Illustration (3) Concepts of editorial illustration media and techniques as applied to book, magazine, and newspaper illustration. Prereq.: 453.

455 Senior Portfolio Seminar (3) Assembly, organization, and exhibition of student's work. Prereq: Consent of instructor. Only by prearrangement with the department. Prereq: Senior standing and consent of instructor. May be repeated. Maximum 12 hours.

459 Special Topics in Graphic Design/Illustration (3) Student or instructor-initiated course offered at discretion of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

462 Intaglio III (3-6) Exploration of individual projects through advanced color printing methods and combinations with other print media. Prereq. 362. May be repeated. Maximum 12 hours.

463 Lithography III (3-6) Exploration of individual projects through advanced color printing methods and combinations with other print media. Prereq.: 363. May be repeated. Maximum 12 hours.


469 Special Topics in Printmaking (3) Student or instructor-initiated course offered at convenience of department. Prereq.: Determined by department for individual topic. May be repeated. Maximum 12 hours.

471 History of North American Art (3) Survey of landmarks in painting, architecture, sculpture, and design from prehistory to 1900.

472 History of 20th Century American Art (3) Development in architecture, painting, and design from 1900.

473 19th Century American Painting (3) From West and Copley to emergence of the "Eight".

474 History of Modern Architecture in Europe and America (3) Survey of 19th and 20th century styles, Sullivan and the skyscraper, 20th century: Viennese leaders, the Bauhaus, Gropius, Van der Rohe, Le Corbusier, and Wright.


479 Special Topics in Art History (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

481 Museology I: Museums, Purpose and Function (3) Purposes, functions and development of museums of art, history, natural and applied sciences. (Same as Anthropology 481.)

482 Museology II: Exhibition Planning and Installation (3) Exhibition concept development and implementation. Exhibition design and installation techniques. Publicity, production, matting and framing, shipping and storage. Prereq.: 481 or consent of instructor. (Same as Anthropology 482.)
490 Wood (2-4) Intermediate to advanced. May be repeated.

ART EDUCATION (141)

301 Foundation of Art Education (3) Basic philosophy and structure including directed learning activities in two and three dimensional design, art appreciation, and teaching methodology. Prereq: Admission to Teacher Education Program. F, Sp

302 Concepts of Drawing and Painting (3) Processes in teaching of drawing and painting including consideration of pertinent literature and research. F, Sp

303 Concepts of Sculpture and Crafts (3) Processes in teaching of sculpture and crafts including pertinent literature and research. F, Sp

304 Concepts of Printmaking, Graphic Design and Lettering (3) Processes in teaching of lettering and research. Prereq: 301 and admission to Teacher Education Program. F, Sp

350 Field Experience (1) Tasks related to teaching and teacher roles. May be repeated. Maximum 2 hours. F

410 Pre-Internship Seminar (1) Orientation describes the objectives and policies of the internship. Must be completed the term immediately preceding the internship. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp

421 Internship: Grades K-12 (3-6) Test of materials and theories of teaching. Internship is completed in local public schools. Application for internship should be made upon admission to Teacher Education Program. Prereq: 410 and admission to Teacher Education Program. Satisfactory/No Credit only. F

481 Internship II: Grades K-12 (3-6) Demonstration of professional competence in planning, instruction and classroom management. Internship is completed in local public schools. Prereq: 481 and admission to Teacher Education Program. Satisfactory/No Credit only. F

490 Special Topics (3) May be repeated. Maximum 6 hours.

493 Independent Study (3) May be repeated. Maximum 9 hours.

ASIAN LANGUAGE (144)

131-132 Elementary Chinese I, II (5,5) Must be taken in sequence. F, Sp

151-152 Elementary Japanese I, II (5,5) Must be taken in sequence. F, Sp

161-162 Elementary Persian (4,4) Taped language program. Must be taken in sequence.

199 Japanese Language and World Business (2) The course will examine the importance of foreign trade at the local, state, and national level. An interdiscipinary team of faculty from the College of Business Administration and Liberal Arts will provide an overview of the value of language study and international awareness in world business. Restricted to students majoring in Language and World Business major concentration. See the Director for further information. F

231-232 Intermediate Chinese I, II (5,5) Prereq: 199 or 199 must be taken in sequence. F, Sp

251-252 Intermediate Japanese I, II (5,5) Prereq: 151-152 or consent of instructor. Must be taken in sequence. F, Sp

311-312 Chinese Literature in English Translation (3,3) Classical/Traditional: masterpieces of poetry, fiction, and drama from 1800. 311-Modern: masterpieces of fiction since 1800. Writing-emphasis course.

331-332 Advanced Chinese I, II (4,4) Prereq: 231-232 or equivalent or consent of instructor. Must be taken in sequence.

351-352 Advanced Japanese I, II (4,4) Includes conversation, drill, and composition practice with native speaker as well as reading and translation. Prereq: 251-252. Must be taken in sequence.

431 Readings in Chinese Literature (3) Prereq: Mastery of intermediate-level of Chinese or consent of instructor. May be repeated. Maximum 9 hours.

451 Readings in Japanese Literature (3) Prereq: Mastery of intermediate-level of Chinese or consent of instructor. May be repeated. Maximum 9 hours.

490 Internship (1-15) Career-related experiences in the United States or abroad with permission of the Language & World Business Director. For Language & World Business majors only. Satisfactory/No Credit only.

ASIAN STUDIES (145)

101-102 Asian Civilization (3,3) Comparative study of development of religion, social institutions, and culture in India, China, Japan, and the Islamic world. 101-India and the Islamic World. 102-China, Japan, and the Islamic World. Writing-emphasis course.

121-122 Elementary Modern Standard Arabic I, II (5,5) Literary Arabic, language of the press, broadcasting, literature, and formal situations. Enroll-ment by permission of instructor.

221-222 Intermediate Modern Standard Arabic I, II (5,5) Literary Arabic, the language of the press, broadcasting, literature, and formal situations. Meets every day, three days with instructor and two with native informant in addition to language lab. Must be taken in sequence.

414-142 Intermediate Modern Hebrew I, II (4,4) Taped language program. Must be taken in sequence. Enrollment by permission of instructor.

261-262 Intermediate Persian (4,4) Taped language program. Prereq: 161-162 or equivalent or consent of instructor. Must be taken in sequence.

319 Islamic Literature in English Translation (3) Selections from the Koran, classical Arabic and Persian poetry and, classical Arabic, Persian, and Turkish prose, including history, philosophy, mysticism, and belles-lettres.

321 Spoken Lebanese-Palestinian Arabic (4) Informal Arabic for use in daily life. Emphasis on appropriate response and understanding of cultural context. All work is oral, including exams, but grammatical analysis is based on standard (written) Arabic. Prereq: 121-122 or consent of instructor.

322 Advanced Modern Standard Arabic (4) Advanced grammar and readings in modern Arabic. Prereq: 221-222 or consent of instructor.

332 Classical Islam (3) Same as Religious Studies 332.

333 Islam in the Modern World (3) Same as Religious Studies 333.

471 Selected Topics in Asian Studies (3) Content varies. May be repeated. Maximum 9 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)
ASTRONOMY (150)

151-152 Introductory Astronomy (4,4) Survey of the construction, structure, and dynamics of the universe which introduces the basic vocabulary of astronomy and scientific method. Components of the solar system including results from interplanetary exploration; hypotheses and origin and growth of the solar system in light of current knowledge and scientific reasoning; stellar birth, evolution and death as a chain of events; changes in and total characteristics of the universe examined in light of modern astrophysics and particle physics. A minimum of mathematical analysis. Must be taken in sequence. 4 hours lecture-demonstration and 1 hour assignment work. Only one of the three sequences 151-152, 161-162, or 217-218 may be taken for credit.

161-162 Introductory Astronomy with Laboratory (4,4) Survey course, with accompanying laboratory, treating the components and dynamics of the universe and introducing the basic vocabulary of astronomy and principles of scientific method. Components of the solar system including results from planetary exploration spacecraft; hypotheses and theories of the origin and evolution of the solar system in light of current knowledge and scientific reasoning; stellar birth, evolution, and death as a chain of events; characteristics of galaxies and of the beginning of the universe in light of modern astrophysics and particle physics. Principles for interpreting observations are reinforced in laboratory. Must be taken in sequence. 3 hours lecture, 2 hour laboratory, only one of three sequences 151-152, 161-162 or 217-218 may be taken for credit.

217-218 Honors: Introductory Astronomy (4,4) Introduction to celestial mechanics, historical perspectives in understanding the celestial universe, with emphasis on the laws of physics as they apply to the changing conceptions of the universe; structure of the solar system and celestial motions; evolution and properties of stars; galactic structure and models of the universe; observational technique and interpretation of underlying physical laws in accompanying lab. 3 hours lecture, 2 hours laboratory. Coreq: Mathematics 141 or 130 or equivalent. Credit given for only one sequence of lower division astronomy courses acceptable for liberal arts requirement for a natural science with laboratory.

411 Astrophysics (3) Development of analytical physical models of the galactic structure of the universe, stellar and interstellar matter, and planetary systems. Topical and interdisciplinary approach included consideration of quasars, pulsars, black holes and current developments in the field. Acceptable for major credit in physics. Prereq: Physics 232 and consent of instructor.

490 Special Topics in Astronomy (1-3) Topics of current interest in Astronomy and Astrophysics. May be repeated for credit with consent of department. Maximum 9 hours.

AUDIOLGY AND SPEECH PATHOLOGY (160)

128 Speech for Foreign Students (3) Sounds and intonation patterns of American English and speech of the student. Designed to improve students' ability to speak and understand English. Satisfactory-No credit.

304 Introduction to Communication Disorders (3) Nature, etiology, and incidence of speech, hearing and language disorders.

305 Speech Science I: Phonetics and Acoustics of Speech (3) Basic phonetics including recognition and production of spoken English sounds with analysis of their formation; acoustic characteristics of speech and speech perception.

306 Speech Science II: Anatomy and Physiology of Speech (3) Anatomy, physiology and embryological development of the speech organs. Coreq: Physics 232 and consent of instructor.

320 Speech and Language Development (3) Speech and language development in the normal child.

331 Articulation Disorders (3) Etiology, diagnosis, and treatment of articulatory defects. Prereq: 304, 305, or consent of instructor. (Same as Special Education 331.)

371 Audiology I (3) Basic audiology. Fundamental aspects of auditory anatomy and physiology. Introduction to diagnostic audiometry. (Same as Special Education 371.)

431 Audiology II (4) Nature, appraisal and treatment. Prereq: 304 or consent of instructor. (Same as Special Education 431.)

433 Observation of Clinical Practice (1) Prereq: 320, 331 or consent of instructor. (Same as Special Education 433.)

434 Clinical Practice in Speech-Language Pathology II (1-4) Prereq: 433 and consent of instructor. Enrollment for fewer than 4 hours is permitted; have prior departmental approval. May be repeated. Maximum 4 hours. (Same as Special Education 434.)

440 Voice Disorders (3) Etiology, diagnosis, and treatment of organic and functional voice disorders. Prereq: 304, 306, or consent of instructor. (Same as Special Education 440.)

445 Clinical Practice in Audiology (1-4) Prereq: 472 and 492.

455 Problems in Speech Pathology (1-3) Prereq: Consent of instructor.


465 Speech and Language of the Culturally Different Child (3) Speech and language differences of children of various minority groups, of different ethnic and class memberships and of different geographic regions. Prereq: 320 and 331 or consent of instructor. (Same as Special Education 465.)

471 Forensic Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

494 Aural Habilitation/Rehabilitation of the Hearing Impaired (3) Introduction to psychosocial aspects, amplification components, assistive devices, speech, hearing, hearing aids, parent-infant, preschool school years of children, communication impairments/handicaps/remediation of adults, effects of aging/remediation on the elderly, and case studies. Prereq: 305 or 473, or equivalents of consent of instructor. (Same as Special Education 494.)

495 Seminar in Communication Sciences and Disorders (3) Capstone Experience: A writing emphasis course exploring the professions of communication disorders in the past, present, and future. Prereq: Consent of instructor and senior standing.

BIOCHEMISTRY (188)

310 Physiological Chemistry (4) Biochemical principles underlying physiological events in animals. Metabolism of carbohydrates, lipids, proteins, and nucleic acids. Role of vitamins and minerals as coenzyme and prosthetic groups. Action of drugs and hormones. Prereq: Chemistry 100-110 or 120-130. Biology 110-20 or Zoology 230. Not available for credit if credit has been previously received for Biochemistry 410 or 420. F. (Same as Nutrition 310.)

410 Cellular and Comparative Biochemistry (4) Biochemistry behavior, chemistry and structure of proteins; enzyme behavior and biological function: catalysis and energy capture; synthetic metabolism; nucleic acid function and protein synthesis; chemical genetics; regulation of biological processes. Prereq: Chemistry 350, 60-69 and Biology 110-20. Three lectures and discussion, F, Sp.


420 Advanced Topics in Biochemistry (3) Selected topics of current research interest, e.g., allostatic theory and control of protein function, immunology, regulation of gene expression, bioenergetics, etc. Emphasis on original literature. Prereq: permission of instructor or consent of instructor. Coreq: or Conreq: 410, Sp.

425 Independent Research in Biochemistry (1-6) Special guidance for advanced study of a staff member. Limited to undergraduates and by consent of instructor. May be repeated. Maximum 12 hours. Prereq: or Coreq: 410, 415.

426 Junior/Senior Seminar (1) Lecture/discussion on selected applications of biochemical principles and techniques in the research, clinical, diagnostic or therapeutic environment. May not be used toward requirements for major or minor. M.

471-481 Introduction to Physical Biochemistry (3,3) Physicochemical principles with emphasis on the application to biochemical systems. Must be taken in sequence. 471 Thermodynamics: chemical equilibrium; solution chemistry; transport phenomena; enzyme catalysis; proteins, nucleic acids and enzyme-catalyzed reactions. 481-Elementary quantum chemistry, interactions of light with biological molecules; optical and magnetic spectroscopy; light scattering; case studies of selected macromolecules. Prereq: Mathematics 142, Chemistry 360-369 and Biology 120 or consent of instructor. 471-F; 481-Sp. (Same as Chemistry 471-481.)

BIOLOGY (190)

110-120 General Biology (4,4) Biology 110 - Biology of cells: chemical basis of life; cell structure and function; energy metabolism; cell division; Mendelism and modern genetics; kingdoms of monera, protista, and fungi. Biology 120 - Plant and animal tissues: life cycles of selected organisms. Must be taken in sequence. 3 hours lecture, 1 hour discussion/field trip each week. May be taken in any sequence or combination with 210 and 230.

210 Cell Biology (4) Organization and function of the cell. Prereq: 110-120, or Biology 110-120 or Honors Zoology 117-118 or the equivalent of 2 years of high school biology and satisfactory ACT scores; Chemistry 120-130, 3 hours lecture, 1 hour discussion each week. May be taken in any sequence or combination with 210 and 230.

220 General Genetics (4) Classical and modern principles of heredity. Prereq: 110-120, or Biology 110-120, or Honors Zoology 117-118 or the equivalent of 2 years of high school biology and satisfactory ACT scores; Chemistry 120-130, 3 hours lecture, 1 hour discussion/field trip each week. May be taken in any sequence or combination with 210 and 220.

230 General Ecology (4) Relations between organisms and their environment, including human environmental problems. Prereq: 110-120, or Biology 110-120, or Honors Zoology 117-118 or the equivalent of 2 years of high school biology and satisfactory ACT scores; Chemistry 120-130, 3 hours lecture, 1 hour discussion/field trip each week. May be taken in any sequence or combination with 210 and 220.

BOTANY (198)

110-120 General Botany (4,4) 110 - Introduction to taxonomy through free identification; basic organization and function of cells; respiration; photosynthesis; genetics (including meiosis, mitosis, Mendelian inheritance); survey of plant kingdom (bacteria, algae, fungi, mosses, ferns, conifers, and flowering plants); 120-Plant growth, development; growth regulation; uptake and transport; origin of the animal kingdom of organisms under direction of instructor to humans and environmental concerns. Students may not receive credit for both Biology 110-120 and Biology 110-120, Biology 118-128, or Biology 150-110, -F, Sp.; 120, Sp. Su.

305 Socio-Economic Impact of Plants (3) Significance of plants in origin and development of human cultures, evolution of cultivated plants, and role of plants in environmental conservation. Consideration of specific plant studies. Occasional field trips. Sp., Su., Mini-Term

306 Genetics and Society (3) Introduction to genetics, anthropological and evolutionary aspects of human society. (Same as Anthropology 306.)

309 Biology of Human Affairs (3) Basic biological principles of the use of biochemical and biological disciplines to define and understand evolution and preservation of an environment in which humans and their cultures may survive.
310-320 Plants: An Evolutionary Survey I, II (3,3) Morphology, development, natural history, and evolution. 310- Surveys non-vascular plants (mosses, algae, fungi, and bryophytes). 320 - Surveys vascular plants (ferns, angiosperms, and gymnosperms, and flowering plants). Need not be taken in sequence. Prereq: 8 hours of biological sciences. F, Sp

313 Introductory Plant Pathology (3) Same as Entomology and Plant Pathology 313.

321 Introductory Plant Physiology (4) Organisms and their physical environment, water relations, mineral nutrition, metabolism, hormones, structural biology, elements of stress physiology, effects of age, light, natural rhythms, temperature, and other environmental factors. Lecture and lab. Prereq: One year of general chemistry and one year of biological sciences. F, Sp, Su

330 Field Botany (4) Principles of taxonomy, basic ecological concepts and the identification, recognition, collection and preservation of local, native and naturalized plants. Prereq: 8 hours in biological sciences. F, Sp, Su

346 Introduction to Oceanography (4) Physical, chemical, biological, and geological processes of the oceans, including tides, waves, ocean circulation, ocean basin processes, marine sedimentation, biogeochemical cycles, and food webs.

371 Undergraduate Seminar (1) At least one hour is required for a Botany major or minor. Junior or senior standing recommended. May be repeated. Maximum 2 hours.

400 Tutorial in Botany (1-2) Individual, independent study under guidance of selected staff. By application only. May be repeated with consent of department. Maximum 4 hours.

401-402 Field Studies in Botany: (Specific Topic to be announced) (3) Field experience and taxonomy of special plant groups. Selected field topics will vary and may include: Bryology, Lichenology, Pteridology, Agroscopy, Mycology, Physiology, Aquatic-Vascular plants, Synanthropology, Woody Plants, and Botanical Photography. May be repeated, but no specific topic may be repeated for credit. Maximum 9 hours.


412 Plant Anatomy (3) Cells, tissues and organs; their development in reproductive and vegetative structures of vascular plants—emphasis on seed plants. Prereq: 110-120 or Biology 110-120.

431 Plant Ecology (3) Interactions between individuals, species, communities and their environments. Circulation of energy and nutrients in the ecosystem. Weekly field trips or laboratory periods, and at least two weekend field trips. Prereq: 330 or equivalent. Sp

441-442 Undergraduate Research Participation (1-2) Experience in active research projects under supervision of staff members. Prereq: Junior or senior standing, minimum grade average 3.0, consent of instructor. May be repeated. Maximum 8 hours. E

451 Plant Tissue Culture (3) Methods for the culture of cells, tissues, and organs including media preparation and maintenance of cultures in the growth chamber. Prereq: Botany 110-120 or Biology 110-120 or equivalent, and Chemistry 120-130 or equivalent. Recommended: Botany 310-320, 321, Microbiology 310 or 318, Ornamental Horticulture and Landscape Design 330, and Plant and Soil Science 331. (Same as Ornamental Horticulture 451.)

470 Cable Television and Emerging Technologies (3) History and structure of the cable television industry. Cable regulations and programming. Examination of the role of the cable telephone company in the video production. Exploration of all technologies used in corporate video including satellite videoconferencing. Includes production of corporate video projects. Prereq: 275 or consent of instructor.

471 Cable Television and Emerging Technologies (3) History and structure of the cable television industry. Cable regulations and programming. Examination of the role of the telephone company in the video production. Exploration of all technologies used in corporate video including satellite videoconferencing. Includes production of corporate video projects. Prereq: 275 or consent of instructor.


490 Radio and Television Management (3) Business policies and practices of broadcast operations, departmental functions, cost and income analysis, leadership styles and techniques, and personnel management. Capstone course to be taken in student's last semester. Prereq: 275, 310, 320, 330.

492 Practicum (1) Work and learning experience at radio, television, or cable or non-broadcast facilities. Final written report required. May be repeated once. Prerequisite: Senior standing and consent of department head

493 Independent Study (3) Area of study in broadcasting to be determined by student in consultation with faculty advisor. Ordinarily the area of study is not part of the departmental curriculum and is subject to an application form available in the department. Pre-requisites: Senior standing and consent of department head

BUSINESS ADMINISTRATION (205)

311 International Business (3) Survey of international business operations in an international context. Analyze and evaluate the problems of international environments, including cultural, political, economic and legal characteristics. Prereq: Economics 201.

320 Business Career Planning and Placement (1) CAREER OPPORTUNITIES: Business. Make the career decision, preparing for and conducting a job campaign. Using the Placement Office. Satisfactory/No Credit only. Prereq: Satisfactory progress to upper-level division in Business or Liberal Arts Business Minor.

487 Honors: Corporate Executive in Residence Seminar (2) Interaction with top corporate executives from a wide spectrum of business and industry. Emphasis on international strategic planning as it is applied in major U.S. Corporations. Executive presentations and small group discussion on good business practices in consumer and industrial settings. Prereq: Senior standing, Finance 301, Management 301, Marketing 301 and consent of instructor.

491 Foreign Study (1-15) Prereq: Consent of instructor. E

492 Off-Campus Study (1-15) Satisfactory/No Credit grading only. Prereq: Consent of instructor. See page 57.

493 Independent Study (1-15) Prereq: Consent of instructor. See page 57.

495 Seminar in International Business Policy (3) Capstone course for students in the Language and World Business Program designed to integrate concepts of international business with major concentrations in International Business only.

BUSINESS LAW (216)

301 The Legal Environment of Business (3) Introduction to legal system including legal ethics (jurisprudence), sources of law, steps in lawsuits, constitutional law relating to business, antitrust and securities law, antitrust law, employer-employee relations, product liability, consumer protection, business associations and governmental regulations, and white collar crimes and torts. Prereq: Junior standing.


CHEMISTRY (235)

100 Principles of Chemistry (4) Bonding and molecular structure, gas laws, liquid and solid state, solutions, colloids, acids and bases, oxidation and reduction, kinetics and equilibria. 3 hours and 1 lab.

110 Introduction to Organic and Biochemistry (4) Organic chemistry; alkanes, unsaturated and aromatic hydrocarbons, structures and reactions of various organic functional groups. Biochemistry: amino acids and proteins, carbohydrates, lipids, 3 hours and 1 lab. Prereq: 100 or 130 or 131 or 138.

120-130 General Chemistry (4,4) A general course in theoretical and descriptive chemistry. 120 - Modern atomic theory, chemical bonding, stoichiometry, quantitative treatment of gas laws, quantitative aspects of solution chemistry, kinetics. 130 - Chemical equilibria, thermochemistry, descriptive chemistry of non-metallic and metallic elements, chemical reactions in organic and biochemistry. Prereq for 120: 121 or 128. 3 hours and 1 lab.

121-131 General Chemistry (4,4) For chemistry major. Subject matter similar to Chemistry 120-130. Prereq for 121: 120 or 121 or 128. 3 hours and 1 lab. 121-121-128-131-138-138

140 Chemical Programming (2) Use of the computer in solving problems encountered in chemistry. Required of and limited to chemistry majors. Prereq: Coror or Coreq: 150 or 130 or 131. 1 hour and 1 lab. Sp

200 Introduction to Chemical Research (1) Participation in an active research program in analytical, inorganic, organic, physical or polymer chemistry. Students work in small groups under the supervision of a faculty advisor. Projects in an area of current research, interpreting results, and formulating hypotheses. Credits may not be applied toward a major or minor in chemistry. Not a substitute or prerequisite for 400. Prereq: Coreq: or Coreq: 200 or higher level course in chemistry and consent of instructor. May be repeated. Maximum 4 hours.

230 Inorganic Chemistry (3) Periodicity, valence, bonding, and the descriptive chemistry of the elements;
400 Research in Chemistry (3) Open to senior majors with consent of department head. Written reports are required. Advanced students work with faculty on projects requiring knowledge and skills acquired in chemistry. May be repeated. Maximum 6 hours. E

405 Topics in the Development of Chemistry (3) Historical development of topics such as the atomic theory; chemical industry; interrelationship of population, energy and the environment. Matter may vary from one offering to another. Assignments include readings from older original literature (Dalton, Faraday, Kekule) and from current journals and monographs, includes the use and misuse of evidence, the impact of chemistry on society, how scientists reach conclusions, and the nature of scientific controversy. Written reports are required. Coreq: Senior standing in chemistry. F, Writing emphasis course.

406 Senior Seminar (1) Discussions by faculty and students of current research and topics from recent literature. Oral and written reports required. All chemistry majors are encouraged to enroll. Coreq: Senior standing in chemistry. May be repeated. Maximum 2 hours. E

409 Advanced Chemical Experimentation (3) Laboratory course in modern experimental techniques to solve chemical problems. Synthesis and characterization of organic and inorganic compounds, with emphasis on independent study and use of chemical literature. Prereq: 300 or 360. 3 lab hours.

410 Advanced Inorganic Chemistry (3) Atomic and molecular structure, bonding theories, descriptive chemistry of the elements, kinetics and mechanism of inorganic reactions, applications of modern techniques for characterization, coordination and organometallic chemistry. Prereq: 230. Prereq or Coreq: 461 or 483. F

431 Radioactivity and Its Application (2) Radioactive materials in tracer and therapeutic applications. Radioactive decay, detection apparatus and techniques, tracer procedures, nuclear applications in agriculture, biology, medicine, nutrition, etc. Not for credit by chemistry or physics majors or minors. Prereq: Mathematics 122 or equivalent. 3 lab hours. Coreq: 100, 110, 120-130, 121-131, 128-138. Sp

450 Advanced Organic Chemistry (3) Modern organic reactions of mechanistic, synthetic, and theoretical interest. Content reflects current trends in the area. Prereq: 360. F

451-481 Biophysical Chemistry (3,5) (Same as Biochemistry 471-481.)

473-483 Physical Chemistry (3,5) Students may not receive credit for both 471 and 473 or both for 481 and 483. 473 - Properties of gases; first, second, and third laws of thermodynamics; entropy; phase equilibria; properties of solutions; introduction to statistical thermodynamics. 483 - Kinetics of chemical reactions; introduction to quantum mechanics and applications to electronic structure of atoms and molecules; spectroscopy. Prereq: 130 or 131 or 138. F

310 Analytical Chemistry (3) Principles and practices of quantitative measurements in chemical systems. Acid-base, complexometric, and redox equilibria; applications of titrimetric and spectrophotometric methods; nuclear magnetic resonance; advanced chromatographic theory. Prereq: 310. Sp

320 Advanced Analytical Chemistry (3) Modern electroanalytical methods; mass spectrometry; optical spectroscopic techniques; magnetic resonance methods; advanced chromatographic theory. Prereq: 310. Sp

329 Advanced Analytical Chemistry Laboratory (2) Experiments on topics covered in 320. Coreq: 320. Sp

350-360 Organic Chemistry (3,3) Compounds of carbon and their reactions. Reaction mechanisms, synthesis, spectroscopic and other physical properties. Must be taken in sequence. Prereq: 130 or 131 or 138; Coreq for 360: 369. E

369 Organic Chemistry Laboratory (2) Experiments on topics discussed in 350-360. Coreq: 360. One 5-hour lab. E

370 Research in Organic Chemistry (3) Open to senior majors with consent of department head. Written reports are required. Advanced students work with faculty on projects requiring knowledge and skills acquired in chemistry. May be repeated. Maximum 6 hours. E

380 Advanced Physical Chemistry (3) Topics from chemical dynamics, statistical thermodynamics, quantum mechanics of systems, and molecular structure and solid state. Prereq: 481 or 483. Sp

490 Introductory Polymer Chemistry (3) Fundamental principles stressing the role of chemistry in the interdisciplinary field of polymer science. Relation of molecular structure to bulk properties of polymers. Prereq: 360. Prereq or Coreq: 481 or 483. F

CHILD AND FAMILY STUDIES (245)

110 Introduction to Early Childhood Education (3) History, philosophy, current trends, issues, programs and program models. Includes observation.

205 Introduction to Family Life Programs (1) Community and school-based programs that focus on enhancing individual and family life. Includes observational experience.

210 Human Development (3) Conception through adulthood in various social/ecological contexts; interrelationships among cognitive, emotional, social; normative, nonnormative development. Includes observation.

211 Development in Infancy and Early Childhood (3) Development from conception through early childhood; interdisciplinary model of development; physical aspects of ontogeny; normative, nonnormative development. Includes observation.

213 Development in Middle Childhood and Adolescence (3) Development during middle childhood and adolescence; interrelationships among cognitive, emotional, social, physical aspects of ontogeny; normative, nonnormative development. Includes observation. Prereq: 211.

220 Marriage and Family: Roles and Relationships (3) Emerging, declining roles, changing relationships among family members across life cycle from various theoretical approaches; impact of gender roles on marital relationships, marital quality, power, decision-making, communications, conflict management, combining work-family roles. (Same as Women's Studies 230.)

240 Human Sexuality (3) Sexuality through cultural, social, familial, and psychological factors.

300 Family Systems (3) Family systems as a component of human ecology: factors impacting on the nature of family, families, and environments. Prereq: NTR 100, RCS 350, CFS 210, and 6 hours in major.

312 Adultism and Aging (3) Adult life in society from youth through elderly; adjustment to internal, environmental changes through adulthood; interrelationships among various aspects of development; physical, cognitive, emotional, social. Includes observation.

320 Parent Education (3) Factors in contemporary American families impacting on parent-child relations; review of programs for strengthening parenting skills. Prereq: 220 or consent of instructor.

345 Family Resource Management (3) Theory and application of managerial functioning in family settings; analysis of goals, resource use, information systems, constraints and influence on family systems; interpersonal skills, interaction with children, child stress reduction and management in classroom. Prereq: 110 and 112. Prereq or Coreq: 351. F

350 Early Childhood Education I: Environments for Children (4) Classroom management, behavior guidance, organization of day care environments, evaluation, interpersonal skills, interaction with children, child stress reduction and management in classroom. Prereq: 110 and 112. Prereq or Coreq: 351. F

355 Exceptional Children (3) Individualized curriculum planning based on knowledge of normative, nonnormative development, assessment of individual abilities, effective teaching strategies for facilitating development. Includes participation. Prereq: 350 and admission to the Child Development major or admission to the Early Childhood Education licensure program. Prereq: 351. F

405 Assessment in Early Childhood Programs (3) Physical, cognitive, social, language development in handicapped and nonhandicapped children birth to 5 years; program development. Includes supervised practicum in assessment. Prereq: 350 and admission to the Child Development major or admission to the Early Childhood Education licensure program. Prereq: 350 or Coreq: 351. F

415 Early Childhood Education III: Mainstreaming Exceptional Children (3) Individualized curriculum planning based on knowledge of normative, nonnormative development, assessment of individual abilities, effective teaching strategies for facilitating development. Includes participation. Prereq: 350 and admission to the Child Development major or admission to the Early Childhood Education licensure program.

460 Directed Study in Child and Family Studies (1-3) Individual learning experience arranged for students under supervision of faculty. May be repeated with different topics. Maximum 6 hours. Prereq: 9 hours in Child and Family Studies and consent of instructor.

470 Student Teaching (15) Responsibility for planning and guiding groups of infants, toddlers, or preschoolers under supervision of classroom teacher and coordinator. Includes weekly seminar. Prereq: 350 and 351 and admission to the Child Development major or admission to the Early Childhood Education licensure program and completion of all program requirements. Satisfactory/No Credit only. F and Sp student teaching begins on first day of registration and ends on last day of final examination period (student teaching follows the CDL calendar); student teaching does not include Fall or Spring break. Summer student teaching begins the day following Spring commencement and ends on the day before Summer commencement. No other classes may be taken during student teaching semester. Exceptions must be approved by the course instructor and the student's advisor.

471 Advanced Practicum in Child Development Specialization (3) Supervised experiences working with children and families in community settings related to each student's child development specialization: child life, early childhood education, process and administra- nation, early childhood special education, and research. Prereq: Consent of the instructor. May be repeated. Maximum 6 hours. Satisfactory/No Credit only.
COURSES OF INSTRUCTION/CINEMA STUDIES

475 Day Care Administration (3) Theories, methods, and materials for administrators of early childhood education programs; writing funding proposals, staff selection, management, training, recruiting and enrolling children, supervision, evaluation, public relations, communication, conflict resolution. Includes participation experience. Prereq: 351 and admission to the Child Development major or admission to the Early Childhood Education licensure program or consent of instructor.

479 Preparation Seminar (1) Orientation to practicum placement, experiences and requirements. Must be completed term immediately preceding enrollment in 480. Prereq: Must complete full progression requirements. Satisfactory/No Credit only.

480 Internship in Family Studies (9) Supervised experiences in community-based family life programs. Coreq: or Prereq: Completion of Family Studies core, completion of the Instructional Pod and Family and Community Service Pod, including CFS 407, HE 325, and HS 380. Satisfactory/No Credit only.

481 Research in Child and Family Studies (3-6) Supervised research experiences. Prereq: 9 hours in Child and Family Studies, cumulative GPA of 3.0 or above, Junior standing, or consent of the instructor. May be repeated. Maximum 12 hours.

485 Special Topics in Child and Family Studies (1-9) Personal or professional interest in human development or family studies. Prereq: 9 hours in Child and Family Studies, Junior or Senior standing, or consent of instructor. May be repeated. Maximum 9 hours.

497 Honors: Child and Family Studies (3-6) Issues or topics affecting children and/or families, designed to meet particular interests of the student. Prereq. 15 hours in Child and Family Studies, overall GPA of 3.25 or greater, Junior standing, or consent of instructor. May be repeated. Maximum of 6 hours.

CINEMA STUDIES

282 Film Design (3) Same as Art 292.

281 Introduction to Film Studies (3) Same as English 261.

312 Popular Culture and American Politics (3) Same as Political Science 312.

323 German Film (3) Same as German 323.

334 Film and American Culture (3) Same as English 334 and American Studies 334.

382 Advanced Film Design (3-6) Same as Art 392.

420 French Cinema (3) Same as French 420.

421 Topics in Italian Literature and Cinema (3) Same as Italian 421.

469 Sexuality and Cinema (3) Same as Women's Studies 469.

489 Special Topics in Film (3) Same as English 489.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

CLASSICS (257)

221 Early Greek Mythology (3) Archaic Greek religion through comprehensive study of Greek myths with emphasis on how they reflect the early Greek vision of the universe and humanity. Prereq: completion of Greek 100. Includes study of the culture of the Minoan and Mycenaean civilizations that developed in the early Bronze Age (ca. 3500-1500 B.C.). Reading materials include Hesiod and the Iliad and Odyssey. Prerequisite: Consent of instructor. May be repeated for credit. Maximum 9 hours. Prerequisites according to topic.

423 Archaeology and Art of Ancient Greece (3) Survey of Greek archaic and classical art and art history, emphasizing the development of architecture, sculpture, and vase painting. Includes major works by the three sculptors of the 6th century B.C., the 5th century B.C., and the 4th century B.C. Prereq: Consent of instructor. Writing-emphasis course.

4233 Archaeology and Art of Etruria and Rome (3) Survey of the art and culture of Etruria and Rome, with emphasis on the development of architecture, sculpture, and vase painting. Includes major works by the three sculptors of ancient Rome, from the 1st century B.C. to the 1st century A.D. Prereq: Consent of instructor. Writing-emphasis course.

493 Independent Study (1-15)

COLLEGE SCHOLARS HONORS

317-318 College Scholars Seminar (1,1) Sequence (in any order) limited to and required of all College Scholars each year. May be repeated. Maximum 8 hours. Satisfactory/No Credit only.

491 College Scholars: Foreign Study (1-15) See Director of Special Programs. Primarily for College Scholars students.

492 College Honors: Off-Campus Study (1-15) See Director of Special Programs. Primarily for College Scholars students.

493 College Scholars: Independent Study (1-15) See Director of Special Programs. Primarily for College Scholars students.

496 College Scholars: Honors (2-12) Designed for College Scholars working on their senior thesis, project, or performance. May be repeated. Maximum 16 hours.

COMMUNICATIONS (259)

100 Introduction to Mass Communications (3) Overview of systems of mass communications with emphasis on American media, their ownership, legal and social controls, roles and effects. Advertising, broadcasting, journalism, and public relations are examined in the context of theories of mass communications.

200 Writing for Mass Communications (3) Information gathering and writing under deadline for print and broadcast media, including news and promotional copy. Preparation of news, advertising and persuasive text. Grammar, usage, and style examinations. Prerequisites: English 102 and typing proficiency.

300 Mass Communications Research Methods (3) Social science research methods, especially sample surveys, used by communications media. Application to both internal decision-making and to external communication in media. Prereq: 200 or consent of instructor. F, Sp

400 Mass Communications Law and Ethics (3) Emphasis on legal issues directly affecting the mass media: libel, privacy, free press-fair trial, judicial controls, government regulations. Also includes ethical standards and practice of the media in America. Prereq: 200 or consent of instructor. F, Sp

COMPARATIVE LITERATURE (260)

201 Introduction to Comparative Literature (3) Basic knowledge, techniques, and sources necessary to compare literatures of various cultures, ages, and nations.

202-203 Cross-Cultural Perspectives in World Literature (3,3) Literary perspectives and values in different historical periods and cultures. Variable content. Writing-emphasis course.

401-402 Special Topics in Comparative Literature (3,3) Content varies. May be repeated. Maximum 9 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

COMPUTER SCIENCE (266)

102 Introduction to Computer Science (4) Problem solving and algorithm development. Organization and characteristics of modern digital computers. Emphasis on the use of computer languages and software tools for solving problems in various fields. Prerequisites: ECE 107 or CSCI 101 and CSCI 102. Satisfactory/No Credit only.
on developing good programming habits. Building abstractions with structures and data. Programming in a modern computing language.

111 Computer Organization (3) Number systems, internal representation of numbers in computers, hardware components, hardware organization, introduction to assembly language, microprogramming general concept. Computing with register machines, introduction to digital circuits. Prereq: 102. 3 hour lab required.

112 Data Structures (3) Structured programming, data structures and applications, I/O techniques, lists, queues, trees, tables, strings, algorithms, files. 3 hour lab required. Prereq: 102.


291 Lower-Division Special Topics (1-3) Topics vary. Programming languages, operating systems, and computer software packages. May be repeated. Maximum 9 hours.

311 Discrete Structures (3) Propositional and predicate calculus, algorithms, graphs, trees, formal methods. 3 hour lab. Prereq: 102.

320 Problem Solving (3) General approaches to problem solving, with emphasis on formalizing intuitive heuristics. Structure of problems and goals, generation of alternatives, and dealing with incomplete information. Prereq: 111 and 112. 3 hour lab required.

340 Introduction to Information Systems Design (3) Principles of analysis and design of information systems (e.g. data processing, management information and decision support systems). Advanced data structures, concepts and techniques. Format is 2 lecture hours and 3 lab hours. Prereq: 111 and 112.

350 Systems Programming (3) Linkers, loaders, multitasking, I/O facilities, interrupt handling, monitors, editors. Prereq: 111 and 112. 3 hour lab required.

371 Numerical Algorithms (3) (Same as Mathematics 371)

380 Theory of Computation (3) Recursive functions, Turing machines, computability, halting problems, Godel theorem. Prereq: 111 and 112 and 311.


412 Senior Thesis II (3) Continuation of 411. Writing-emphasis course.

420 Advanced Topics in Machine Intelligence (3) Topics such as search, learning, expert systems, neural networks, pattern recognition, and natural language processing. Emphasis on faculty research. May be repeated. Maximum 9 hours. Prereq: Completion of core curriculum or consent of instructor.

430 Advanced Topics in Hardware Systems (3) Topics such as architecture, parallel processors, microprogramming, networks and communications. Emphasis on faculty research. May be repeated. Maximum 9 hours. Prereq: Completion of core curriculum or consent of instructor.

460 Advanced Topics in Software Systems (3) Topics such as operating systems, compilers, parallel computation, software engineering, database systems and programming languages. Emphasis on faculty research. May be repeated. Maximum 9 hours. Prereq: Completion of core curriculum or consent of instructor.

470 Advanced Topics in Scientific Computation (3) Topics such as numerical methods, supercomputers and computer modeling and simulation of physical systems. Emphasis on faculty research. May be repeated. Maximum 9 hours. Prereq: Completion of core curriculum or consent of instructor.

471 Numerical Analysis (3) (Same as Mathematics 471)

472 Numerical Algebra (3) (Same as Mathematics 472)

480 Advanced Topics in Theoretical Computer Science (3) Topics such as theory of computation, complexity theory, formal languages and graph theory and its applications. Emphasis on faculty research. May be repeated. Maximum 9 hours. Prereq: Completion of core curriculum or consent of instructor.

483 Independent Study (1-15) Special project in area of student's primary interest. Directed by Computer Science faculty, perhaps jointly with student's faculty advisor. Intended for students with a specific project to pursue in conjunction with a faculty member. Prereq: May be from a department other than Computer Science in which a faculty member from the appropriate department will be involved in the project. May be repeated. Maximum of 6 hours may be applied to the major. Prereq: consent of instructor.

494 Special Topics in Computer Science (1-3) May be repeated. Maximum 9 hours.

DANCE (274)

101 Practicum: Dance Production (1) Supervised technical and production aspects of university dance company. May be repeated. Maximum 2 hours.

201 Practicum: Dance Performance (1-2) Preparation and presentation of university dance company performances. Participation through audition only. May be repeated. Maximum 16 hours.

210 Ballet: Level I (2) Instruction and practice in elementary classical ballet techniques. May be repeated. Maximum 4 hours.

220 Jazz: Level I (2) Instruction and practice in elementary jazz dance styles and techniques. May be repeated. Maximum 4 hours.

230 Modern: Level I (2) Instruction and practice in elementary modern dance techniques. May be repeated. Maximum 4 hours.

240 Tap: Level I (2) Instruction and practice in elementary tap dance techniques.

310 Ballet: Level II (2) Instruction and practice in intermediate classical ballet techniques. Available to majors and minors or with consent of instructor. May be repeated. Maximum 12 hours.

320 Jazz: Level II (2) Instruction and practice in intermediate jazz dance styles and techniques. Available to majors and minors or with consent of instructor. May be repeated. Maximum 12 hours.

330 Modern: Level II (2) Instruction and practice in intermediate modern dance techniques. Available to majors and minors or with consent of instructor. May be repeated. Maximum 12 hours.

340 Tap: Level II (2) Instruction and practice in intermediate tap dance techniques.

410 Ballet: Level III (2) Instruction and practice in advanced classical ballet techniques. Available to majors and minors or with consent of instructor. May be repeated. Maximum 16 hours.

440 Composition I (2) Choreographic skills emphasizing form, content and music. Prereq: 4 hours credit in upper level modern dance technique (330 or 430) or approval of instructor.

445 Composition II (2) Choreographic skills emphasizing design, use of costumes and props. Prereq: 440 or approval of instructor.

450 Composition III (3) Application of choreographic and production skills culminating in the presentation of two works. Prereq: 440 or 445 or approval of instructor.

460 Rhythmic Analysis (3) Basic nature and principles of rhythm in music and rhythmic notation with emphasis on their correlation with dance movement and composition. Prereq: Consent of instructor. Senior standing or graduate status required for graduate credit. Different level of performance is expected of those registered for graduate credit.

465 Dance Notation (3) Fundamentals of movement notation with emphasis on notation and reading of elementary movement studies. Prereq: Standing or graduate status required for graduate credit. Different level of performance is expected of those registered for graduate credit.

480 Dance History through the 19th Century (3) Survey of the dance of various societies and cultures from pre-history through the nineteenth century. Senior standing or graduate status required for graduate credit. Different level of performance is expected of those registered for graduate credit.

481 History of Dance II (3) Survey of history and philosophy of dance in the 20th century. Senior standing or graduate status required for graduate credit. Different level of performance is expected of those registered for graduate credit.

490 Dance in the 20th Century (3) Survey of history and philosophy of dance in the 20th century. Senior standing or graduate status required for graduate credit. Different level of performance is expected of those registered for graduate credit.

493 Directed Independent Studies (1-3) Independent study in a specialized area with dance. May be repeated. Maximum 9 hours. Prereq: Consent of instructor.

495 Dance Pedagogy (3) Principles and methods of the teaching of dance with practical application in a minor or major dance curriculum. Prereq: Upperclass or graduate standing and approval of instructor. Senior standing or graduate status required for graduate credit. Different level of performance is expected of those registered for graduate credit.

ECOLOGY (278)

370 Environment and Conservation (2) Introduction to natural and artificial environments and natural resource conservation. Limited to students in the College of Education.

ECONOMICS (283)

100 Survey of Economic Ideas (3) Ideas of major economists in context of socioeconomic conditions of their time. Emphasis on nontechnical treatment. May not be substituted for Economics 201.

201 Introductory Economics: A Survey course (4) Theory of consumer behavior, supply and demand, costs of production, market models, national income and employment theory, money and banking, monetary and fiscal policy, debt, and international economics.

207 Honors: Introductory Economics (4) Honors course for students of superior ability and interest. Students accepted on the basis of their records.

311 Intermediate Microeconomics (3) Theories of consumer behavior, of production and costs, of price and behavior of firms in perfectly competitive, monopolistic and imperfectly competitive markets, input prices, income distribution, welfare and general equilibrium.


321 International Economics (3) Balance of payments, exchange rate determination, monetary and fiscal policies, monetary and fiscal arrangements, comparative advantage, tariffs and nontariff trade distortions, protection arguments, regional integration. Prereq: 201.

323 Economic Development (3) Theories of economic development, policies and strategies used to promote economic improvement in less developed countries. Prereq: 201. Writing-emphasis course.

491 Honors Seminar (3) Topics vary. Senior paper; student to pursue topic of special interest. Prereq: PreReq: 201. Writing-emphasis course.

314 Survey of Labor Economics (3) Extension of economic principles to labor markets. Analysis of demand and supply, theories of wages, unemployment, unions in private sector; implementation of individual and collective bargaining, training, mobility. PreReq: PreReq: 201.

343 Labor Relations and Collective Bargaining (3) Same as Management 314. Prereq: PreReq: Economics 311 with a grade of B or better.

492 Introduction to Mathematical Economics (3) Introduction to mathematical methods used in economics. Application of basic mathematical tools (e.g., calculus, linear algebra, geometry, matrix algebra) in economic theory. PreReq: PreReq: Economics 311 with a grade of B or better.

403 Professional Studies: Teaching and Curriculum (2) Organizational patterns of curricula and classroom development. Focus on role and responsibilities of secondary school teachers and administrators. Prereq: PreReq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp.

404 Special Topics (1-3) Instructor-initiated course. May be repeated. Maximum 9 hours.

EDUCATIONAL CURRICULUM AND INSTRUCTION (301)

400 Special Topics (1) Topics vary. Prerequisites determined by department, each time course is offered. May be repeated. Maximum 15 hours.

203 Field Study in Education (1-3) Prereq: PreReq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp.

302 School and American Society (3) Social, political, and cultural perspectives on content and methods of teaching, curriculum materials, school-community relationships, and school organizations. May be repeated. Maximum 6 hours.

303 School and American Society (3) Historical, philosophical, and social perspectives on content and methods of teaching, curriculum materials, school-community relationships, and school organizations. Prereq: PreReq: Admission to Teacher Education Program.

304 Microcomputers and Instructional Design (3) Introduction to basic operations and application of the microcomputer as related to curriculum development and instructional design. Prereq: PreReq: Admission to Teacher Education Program.

401 Professional studies: The Learner (3) Understanding of students from diverse cultures; study of learning principles; special needs of learners; behavior management techniques. Prereq: PreReq: Educational and Counseling Psychology 210; PreReq: Admission to Teacher Education.

402 Field Experiences in Teaching: Secondary I (1) Field experiences in teaching of secondary school students. Prereq: 352 and Admission to Teacher Education Program. Satisfactory/No Credit only. Sp.

404 Special Topics (1-3) Instructor-initiated course. May be repeated. Maximum 9 semester hours. Satisfactory/No Credit only. Sp.

403 Professional Studies: Teaching and Curriculum (2) Organizational patterns of curricula and classroom development. Focus on role and responsibilities of secondary school teachers and administrators. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp.

404 Special Topics (1-3) Instructor-initiated course. May be repeated. Maximum 9 hours.

405 Laboratory and Field Studies in Elementary Education (1) Simulated and actual classroom experiences in teaching elementary school students. Prereq: Admission to Teacher Education Program F, Sp.

406 Special Topics (1-3) Instructor-initiated course. May be repeated. Maximum 9 hours.

410 Professional Studies: Teaching and Curriculum (1) Understanding of the development and evolution of educational systems, curricula, and teaching/learning processes. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp.

412 Field Study in Education (1-3) Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp.

413 Macroeconomic Fluctuations (3) Analysis of historical data, methods of analyzing macroeconomic fluctuations, implications of economic cycles, and the role of monetary and fiscal policies in the aggregate economy. Prereq: PreReq: 313 or consent of instructor. Writing-emphasis course.


425 Teaching Science and Social Studies in Elementary and Middle Schools (3) Methods and background on how to teach science and social studies in elementary and middle schools. Teaching approaches common to both fields; hands-on, inquiry, multi-disciplinary, and group approaches. For BS Education students only. Prereq: Admission to Teacher Education Program. F, Sp.

426 Teaching Language Arts/Reading in Elementary and Middle Schools (3) Language and language development. Emphasis on planning for teaching of oracy (listening, speaking, and certain aspects of literacy). Includes methods and materials. Prereq: Admission to Teacher Education Program. F, Sp.

427 Teaching Mathematics in Elementary and Middle Schools (3) Emphasis on planning for teaching of basic mathematics. Unit planning, daily planning, grouping, classroom management are included. Prereq: Admission to Teacher Education Program. F, Sp.

428 Teaching Social Studies in Elementary and Middle Schools (3) Emphasis on planning for teaching of social studies. Prereq: Admission to Teacher Education Program. F, Sp.

429 Teaching Developmental Reading in the Elementary and Middle Schools (3) Methods and strategies for teaching word recognition skills, comprehension, study skills and how to use materials. For BS Education students only. Prereq: Admission to Teacher Education Program. F, Sp.

430 Teaching Developmental Writing in the Elementary and Middle Schools (3) Methods and strategies for teaching word recognition skills, comprehension, study skills and how to use materials. For BS Education students only. Prereq: Admission to Teacher Education Program. F, Sp.

431 Teaching Social Studies in Elementary and Middle Schools (3) Emphasis on planning for teaching of social studies. Prereq: Admission to Teacher Education Program. F, Sp.

432 Teaching Social Studies in Elementary and Middle Schools (3) Emphasis on planning for teaching of social studies. Prereq: Admission to Teacher Education Program. F, Sp.

433 Teaching Developmental Writing in the Elementary and Middle Schools (3) Methods and strategies for teaching word recognition skills, comprehension, study skills and how to use materials. For BS Education students only. Prereq: Admission to Teacher Education Program. F, Sp.

434 Teaching Language Arts/Reading in Elementary and Middle Schools (3) Language and language development. Emphasis on planning for teaching of oracy (listening, speaking, and certain aspects of literacy). Includes methods and materials. Prereq: Admission to Teacher Education Program. F, Sp.

435 Teaching Mathematics in Elementary and Middle Schools (3) Emphasis on planning for teaching of basic mathematics. Unit planning, daily planning, grouping, classroom management are included. Prereq: Admission to Teacher Education Program. F, Sp.

436 Teaching Social Studies in Elementary and Middle Schools (3) Emphasis on planning for teaching of social studies. Prereq: Admission to Teacher Education Program. F, Sp.

437 Teaching Developmental Writing in the Elementary and Middle Schools (3) Methods and strategies for teaching word recognition skills, comprehension, study skills and how to use materials. For BS Education students only. Prereq: Admission to Teacher Education Program. F, Sp.

438 Teaching Social Studies in Elementary and Middle Schools (3) Emphasis on planning for teaching of social studies. Prereq: Admission to Teacher Education Program. F, Sp.

439 Teaching Developmental Reading in the Elementary and Middle Schools (3) Methods and strategies for teaching word recognition skills, comprehension, study skills and how to use materials. For BS Education students only. Prereq: Admission to Teacher Education Program. F, Sp.

440 Teaching Developmental Writing in the Elementary and Middle Schools (3) Methods and strategies for teaching word recognition skills, comprehension, study skills and how to use materials. For BS Education students only. Prereq: Admission to Teacher Education Program. F, Sp.
ENGINEERING CHEMICAL (226)


240 Fluid Flow and Heat Transfer (4) Force, energy and momentum balances; flow in tubes; piping systems, packed and fluidized beds; pumps and compressors; steady and unsteady state models; heat transfer in tubes and heat exchangers; radiation. Prereq: Math 210, Math 220.

310 Chemical Engineering Laboratory (3) Thermochemistry, fluid flow and heat transfer in chemical engineering. Prereq: Math 210, Coreq: Chem 473.


340 Mass Transfer and Separation Processes (3) Staged operations (distillation, extraction, humidification, ion exchange, membranes). Applications: gas absorption, distillation, extraction, humidification, ion exchange and membranes. Prereq: Math 210, Coreq: Chem 473.


450 Chemical Reactor Fundamentals (3) Homogeneous and heterogeneous reaction kinetics; idealized homogeneous reactor models, both for closed and flow systems; non-linear rate models; analysis of non-linear systems. Prereq: Math 210, Coreq: Chem 473.

461 Advanced Process Dynamics and Control (3) Process and control system simulation and advanced industrial system design. Cascade, feedforward, multivariable, state feedback, state estimation, control system design. Includes computer and laboratory work. Prereq: Math 210, Coreq: Chem 473.

469 Engineering Internship in Process Control (4) Selected students work in small groups on industrial problems in process dynamics and control. Directed by faculty and engineers from host company. Prereq: 360 and consent of instructor.


485 Hydrocarbon Processing (3) Chemical and physical properties of petroleum, and processes used in conversion of raw material to valuable chemicals. Prereq: Math 210, Coreq: Chem 473.

494 Special Problems in Chemical Engineering (3) Chemical engineering problems related to recent developments in industrial practice or research. Prereq: Consent of instructor. May be repeated. Maximum credit 6 hours.

ENGINEERING CIVIL AND ENVIRONMENTAL (254)


305 Seminar (2) Selected topics including historical and modern civil engineering achievements, professional and ethical responsibilities. Prereq: Junior standing.


330 Introduction to Soil Behavior (4) Physical and mechanical properties of soils, theory of compaction, consolidation, and effective stress. Consolidation theory, time rate and settlement, shear strength of sands and clays, and analysis of homogeneous slopes. 3 hours, 1 lab. Prereq: Chem 350.

352 Transportation Engineering II (3) Introduction to design of highway systems, design of various transportation modes, their guidelines and terminals. Two lectures and 1 lab. Prereq: Junior standing and 350.

361 Structural Analysis II (3) Stress and strain in beams and columns; Mohr's circle; influence lines; deflections and beams and trusses; analysis of indeterminate structures; moment distribution. Prereq: 250.

380 Water and Waste Treatment (3) Principles of unit operations employed in physical, chemical, and biological treatment of water, wastewater, and solid wastes. Prereq: Junior standing and 330.


395 Hydrology (3) Concepts of hydrologic cycle; weather patterns; precipitation measurement and distribution, abstraction and runoff; storm hydrograph and peak flow analyses. Prereq: Math 210, Coreq: Chem 473.

400 Senior Design Project (3) Open-ended design projects including problem formulation, specifications, feasibility and various design components. Topics vary and include problems typical of those designed by Civil Engineering consulting firms. Prereq: Completion of all technical courses through junior year.

405 Legal and Ethical Aspects of Engineering (2) Legal principles of engineering practice; laws of contracts, torts, real property, intellectual property, professional registration and ethics. Prereq: Senior standing.

407 Special Topics (1-3) Recent developments and current practice in civil and environmental engineering through seminar and literature surveys. Prereq: Consent of instructor and department head. May be repeated. 3 hours, 1 lab. Prereq: 250.

421 Portland Cement and Asphalitic Concrete (3) Aggregate properties and tests, tests of portland cement concrete, mix design methods for concrete and asphalt concrete, tests of Portland and asphalt mixes, and nondestructive testing. Two lectures and 1 lab. Prereq: 250.


440 Civil Engineering Systems Design and Management (3) Methods of data analysis and modeling of civil engineering systems to evaluate and design for specific application to problems of transportation, environmental, water resources, structural analysis. Prereq: Math 210, Coreq: Chem 473.

441 Construction Methods and Equipment (3) Fundamentals of construction, material and equipment selection and productivity; concrete and steel construction; and construction contracts and economics. Prereq: Math 210, Coreq: Chem 473.

451 Highway Engineering (3) Design, construction, operation and maintenance of highway facilities; includes application of various engineering principles and techniques to process of planning, design and construction of highway facilities; covers both geometric and pavement design. Prereq: Math 210, Coreq: Chem 473.
420 Electrical and Computer Engineering Computations (3) Complex analysis and phasor calculus; linear algebra; algorithms for roots of equations; numerical integration and solution of ordinary differential equations. Programming in C and use of the application language MATLAB. Coreq: or Prereq: 201.

204 Linear Control System Design (3) Classical and modern techniques for determination of linear feedback control systems. Design content: 2 hours. Prereq: 201, 202.

ENGINEERING ELECTRICAL AND COMPUTER (320)

201 Circuits I (3) Fundamental laws of circuit analysis. Ohm's Law, Kirchhoff's current and voltage laws; the law of conservation of energy, circuits containing independent and dependent voltage and current sources, resistance, capacitance, and inductance; analysis using mesh nodal analysis, superposition and source transformations, and Norton's and Thévenin's Theorems. Fundamentals of DC and AC circuits. Complete solution for transient analysis for circuits with one and two storage elements. Prereq: All course work in the freshman and sophomore years.

202 Circuits II (4) Average complex, imaginary and real power; effective values of voltage and currents. Three phase circuits; delta and wye connections. Complex frequency, natural frequencies of undamped systems. Damping factors and damped response. Resonance; general case, special cases in series and parallel circuits. Scanning; magnitude and frequency. Mutual inductance, transformers as circuit elements. Linear and ideal transformers; admittance, impedance and hybrid parameters; trigonometric and complex Fourier series, includes laboratory experiments. Prereq: 201. Coreq: Physics 230 and Mathematics 241.

205 Electrical and Computer Engineering Computations (3) Complex analysis and phasor calculus; linear algebra; algorithms for roots of equations; numerical integration and solution of ordinary differential equations. Programming in C and use of the application language MATLAB. Coreq: or Prereq: 201.

251 Small Computer Systems (3) Structured assembly language programming; data collection under the control of the microprocessor; microprocessor instruction sets. A/D converter output to CRT display; on-line, real-time analysis using elementary filters; communications between computers; speed applications, word processing; computer control and automation systems. Includes laboratory experiments and projects. Design content: 2 hours. Prereq: 201, 205. Coreq: 202.

301 Circuits and Electro Mechanical Components (3) DC and AC Circuits. Transistors, Transformers, Mo- tors, Generators. For non-majors only. Prereq: Mathe- matics 231, Physics 231.


332 Electronic Circuits (3) Multistage transistor ampli- fier biasing; gain stages, and output stages; frequency and transient response of open loop linear amplifiers; fundamentals of integrated circuits, operational ampli- fier applications in basic feedback configurations; basic transistor switching circuits. Includes laboratory experi- ments and design projects. Design content: 2 hours. Prereq: 251.

341 Fields (3) Coulomb's law, Gauss's law, Ampere's law, Maxwell's equations for electrostatic and magneto- static cases; Maxwell's equations for dynamic case, dynamic potentials, uniform plane wave propagation. Transmission lines. Prereq: 201.

342 Communication Systems I (3) Systems analysis of communication systems. Topics include signal and system classification, Fourier and Hilbert Transform techniques, power spectral density and correlation, and sampling theory. Analog modulation techniques includ- ing linear, angle, and pulse modulation with applica- tions. Introduction to digital signal processing and intro- duction to digital communication systems. Includes laboratory experiments and proj- ects. Prereq: 311.

351 Introduction to Logic Design of Digital Systems (3) Boolean algebra, a logic design of combinational circuits, power spectral density and correlation, and sampling theory. Analog modulation techniques includ- ing linear, angle, and pulse modulation with applica- tions. Introduction to digital signal processing and intro- duction to digital communication systems. Includes laboratory experiments and proj- ects. Prereq: 311.

360 Introduction to Plasma Engineering (3) Particle motion in electric and magnetic fields; collective motions of charged particle systems. Includes the Langmuir probe; plasma light sources and lasers; radio waves in plasmas and the ionosphere; MHD generators and transformers; laser physics and plasma power. Includes laboratory experiments and projects. Prereq: 202 for ECE majors; or Physics 232 or 236 for all others.

370 Junior Seminar (1) Presentations and discussions related to professional development, and current topics in electrical engineering. Prereq: 202. Satisfactory/No Credit.

405 Digital Signal Processing and Filter Design (3) Discrete signal and filter design, recursive and non- recursive filters, and filter design. Includes laboratories and CAD tools for filter design. Includes experiments and projects. Design content: 1 hour.


412 Linear Control System Design (3) Classical and modern techniques for determination of linear feedback control systems. Design content: 2 hours. Prereq: 312.

413 Passive and Active Network Synthesis (3) Net- work analysis techniques, passive network driving point synthesis, transfer function synthesis, approximation theory, topics in active network synthesis. Design con- tent: 3 hours. Prereq: 312.


422 Machines (4) Dynamic behavior of rotating ma- chines and machine failures. Modes of operation of d.c. machines; response to different wave- forms in supply; describing equations for a.c. machines and their numerical solutions. Includes laboratory experi- ments and projects. Design content: 2 hours. Prereq: 321.


431 Digital and Analog Integrated Electronics (4) Basic processing and fabrication of active and passive components for monolithic integrated circuits, characteris- tics of bipolar, MOS and JFET transistors in typical analog and digital integrated circuit designs; standard digital logic circuits including TTL, CMOS, NMOS, CMOS, and GaAs gates and arrays; design concepts for op-amps, comparators, references, regulators, and other linear functional circuits; includes laboratory experiments and design projects. Design content: 2 hours. Prereq: 332.

432 Analog Signal Processing Electronics (4) Trans- ducer signal and interfacing characteristics; analog inte- grated circuits including operational, instrumentation, and isolation amplifiers, op-amps and linear op-amps, and integrated circuit design; linear regulated power supply design, switching regulator principles; oscillator principles. Includes laboratory experiments and design projects. Design content: 2 hours. Prereq: 332.

433 Electronic Amplifiers (4) Feedback amplifier prin- ciples; wideband linear amplifier design; frequency and power amplifiers; design: linear regulated power supply design; switching regulator principles; oscillator principles. Includes laboratory experiments and design projects. Design content: 2 hours. Prereq: 332.

442 Antennas and Propagation (3) Linear antennas, arrays, other simple antennas. Antenna gain, impedance, communication link parameters. Wave propagation in earth’s ionosphere and in free space. Reflections from earth, effects on link reliability. Design content: 1 hour. Prereq: 341.

443 Microwave Circuits and Electronics (3) Scattering, design of microwave circuits to include isolators and attenuators, lumped and distributed elements, power dividers, circulators, phase shifters, loading and interconnection of systems. Power generation and amplification by vacuum and solid state devices. Design content: 1 hour. Prereq: 341.


451 Microprocessors in Computer Engineering (4) Project oriented using a microcomputer kit having a monitor program and development system with cross-assembler, file management, and emulators. Interfacing and hardware/software trade-offs in interrupt driven applications. Topics include selection and assembly of many of the components of a complete system. Design projects. Design content: 3 hours. Prereq: 351.

452 Organization and Design of Digital Systems and Computers (4) Offered as a course in the organization of digital and computer systems. Includes ALU and CPU structures, control unit organization, storage systems, and the I/O channels. Programmed solution of the control unit and different interrupt structures. Includes laboratory experiments and design projects. Design content: 3 hours. Prereq: 351.

453 Data Acquisition Systems (4) Digital-to-analog conversion techniques; quad and R-2R ladder networks; error analysis of conversion circuits; threshold circuits; analog-to-digital conversion techniques; open loop systems; mixed and digital systems; closed loop systems; digital waveform generation. Design content: 2 hours. Prereqs: 312, 341, 342.

461 Plasma Magnetohydrodynamic Engineering (3) The MHD approximation; MHD waves and instabilities; MHD in static and dynamic systems; MHD in pulsed and steady-state power generation. Applications to fusion energy, industry, and astrophysics. Design content: 1 hour. Prereq: 361.

462 Plasma Kinetic Theory Engineering (3) Introduction to kinetic theory; beam-solids systems; driven waves in a plasma; transition from multiple beams to a continuum; Vlasov and Landau theory; microwave generation in plasmas and travelling wave tubes; free electron masers; optical masers; signal processing and communications. Design of plasma devices. Design content: 1 hour. Prereq: 361, 461 or consent of instructor.

463 Introduction to Fusion Energy I (3) High-temperature plasma physics relevant to fusion plasma, principles of fusion devices, diagnostics and control, and physics constraints on fusion reactors. Prereq: 361 for ECE majors, or consent of instructor. (Same as Nuclear Engineering 463.)

464 Introduction to Fusion Energy II (3) Continuation of 463. Includes principles and phenomenology of tokamak reactors, alternate magnetic confinement concepts, advanced fusion fuels, fusion technology, plasma engineering, and fusion reactor design studies. Includes design project which integrates material in 463 and 464. Design content: 2 hours. Prereq: 463 or consent of instructor. (Same as Nuclear Engineering 464.)

469 Plasma Laboratory (1) Experiments and design projects illustrating material covered in 461 and 462. Design content: 1 hour. Prereq: 341.


493 Special Topics in Electrical and Computer Engineering (1-3) Topics relating to recent developments and current practice. May be repeated. Prereq: Consent of instructor.

494 Special Problems in Electrical Engineering (1-3) Project in Electrical Engineering. Design content: 1 hour. Prereq: Consent of instructor.

495 Senior Seminar I (1) Topics vary. May be repeated once. Prereq: Senior standing or consent of instructor. Satisfactory/No Credit or letter grade.

ENGINEERING INDUSTRIAL (556)

200 Fundamental Computer Applications in Industrial Engineering (3) Application of modern computer hardware and software to enhance professional productivity. Spreadsheets, word processing, graphics, and libraries programs. Basic programming. Includes FORTRAN programming and numerical analysis. Design content: 3 hours. Prereqs: 332, 351.


201 Sophomore Seminar I (3) An introduction to Industrial Engineering and its methodologies. Prereq: Sophomore standing.


204 Work Methods and Measurement (3) Job analysis, evaluation of work designs, design of workplace layouts, flow charts, activity charts and methods improvement. Work measurement tools such as time and motion study, scientific methods engineering and physical method engineering. Design content: 3 hours. Prereq: Mathematics 201 or 202.

205 Project Planning and Scheduling (3) Project planning, scheduling, and control based on networking and precedence diagramming methods. Includes computer simulation and cost-time trade off algorithms, critical path methods, and Pert/Cost/CPM method of handling uncertainty in activity time estimates.

206 Production Facilities Design and Material Handling (3) Design of production facilities including layout and analysis and planning for overall moving, handling and storage of materials. Principles include office design, layout and service areas. Principles applicable to design of facilities for such diverse groups as hospitals, banking, and industry. Prereq: 302, 401.

207 Senior Seminar I (1) Discussions, lectures and trips to unity students education experience. Prereq: Senior standing in Industrial Engineering.

208 Engineering Economy (3) Methods and problems in discounted cash flow techniques. Decisions among engineering alternatives involving economic justification. Techniques for design and management of equipment. Consideration of inflation, taxes, economic life of equipment, and sensitivity of decision to changes in factor estimates.


210 Determined Time Systems (2) Work design and measurement using predetermined time systems such as time and motion studies, work measurement, and Motion Time Study or Work Factor. Theory and application. Prereq: 302.

211 Planning and Scheduling (3) Forecasting techniques and case studies in forecasting and planning. Performance measures for job shop and shop scheduling. Techniques for generating production schedules and a comparison of different material. Requirement Planning and Just-In-Time philosophies. Prereq: 302.

212 Quantitative Methods in Project Management (2) Project planning, scheduling, and control based on networking and precedence diagramming methods. Includes computer simulation and cost-time trade off algorithms, multi-project control, computer applications, and PERT methods of handling uncertainty in activity time estimates.

214 Research Methods in Industrial Engineering (3) Methodology and applications used in conducting industrial engineering studies. Techniques such as process control, statistical modeling of processes, behavioral sampling, single subject experiments, experiments, classical experimental design methods, and time and motion study. Design content: 3 hours. Prereq: 302.

414 Laboratory and Methodology in Human Factors Engineering (3) Project and laboratory-oriented investigation of human factors problems: instrumentation and measurement of human capabilities and limitations. Focus on environmental factors that affect work such as temperature-humidity, lighting and noise. Measurement of task loading effects and the effects of interface design on human performance. Student-selected group project. Prereq: 304 and senior standing.

421 Informational Systems I (3) Systems engineering approach to design, development, implementation, and evaluation of systems of information. Emphasizes informational aspects of all systems. Study of data structures and database management systems. Prereq: 200 and senior standing.

422 Senior Industrial Engineering Problems Analysis (3) Application of Industrial Engineering to field assignments in local organizations, including problem definitions, analysis and presentation. Prereq: 402, 403 and 405.


440 Total Quality Management (3) The philosophy of continuous improvement, organizational change, management and implementation issues; definition, identification and analysis of systems as compared to processes; measurement of improvement; flowcharts, pareto charts, causes and effect diagrams and the seven new tools; data collection and control strategies; capability analysis; quality of design; components of variation; measurement issues, issues relevant to continuous processes; managing quality in short-run environments; the use of classical statistical tools such as correlation and regression analysis of systems. Course contains a lab component to provide hands-on experience. Prereq: IE 300 and senior standing or consent of the instructor.

494-495 Special Topics in Industrial Engineering (3,3) Recent developments in Industrial Engineering including new areas of application, new research techniques and new methodologies. May be repeated once. Prereq: Senior Standing and consent of instructor.

ENGINEERING MATERIALS SCIENCE (638)

201 Introduction to Materials Science and Engineering (3) Correlation of atomic structure, crystal structure and microstructure of solids with mechanical, physical and chemical properties of engineering significance. Prereq: Chemistry 130. E

300 Materials Laboratory Procedures (1) Thermometry, sample preparation for microscopic examination; heat treatment; mechanical testing of metals, ceramics and plastics; fatigue; Prereq: 201. F,Sp,Su

302 Mechanical Behavior of Materials I (3) Tensile testing of metals, ceramics and plastics; deformation mechanisms in the various materials, incl. crystalline and non-crystalline forms; rubber elasticity, viscoelastic behavior, creep, time-temperature superposition in polymers; fatigue; Prereq: 201, 303, or consent of instructor. SP (Same as Chem. Engr. Science and Mechanics 323.)


303 Thermodynamics of Solids (3) Applications to solids of the first and second laws; gas-condensed phase equilibrium; phase stability; phase rule; multicomponent systems. Prereq: Chem. Engr. 200.


340 Principles of Polymeric Materials (3) Synthesis and molecular structure of polymers; polymerization kinetics; nucleation; crystallization kinetics; crystallography and transitions; crystallization kinetics; mechanical properties; rheology and processing. Prereq: 201, F.

360 Principles of Ceramic Materials (3) Characterization of ceramic materials as to their crystal structure, their mechanical, electrical, and optical properties. Ceramic fabrication processes from the initial green body fabrication through the firing state. Prereq: 201.

390 Materials Seminar (1) Professional and ethical considerations; safety, patents, product liability. Satisfactory/No Credit grading only. Prereq: Senior standing.


405 Structural Characterization of Materials (4) X-ray diffraction and fluorescence; scanning and transmission electron microscopy; microanalytical techniques. Prereq: 302.

421 Mechanical Behavior of Materials II (3) Description of stress and strain; linear elastic constitutive equations; strain rate; the effect of strain rates in various materials; yield criteria; brittle fracture; plastic deformation; strain; stress-strain curves; forming equations and limits of proportionality. Prereq: 302, ESM 321, sophomore mathematics.

422 Chemical Process Metallurgy (3) Application of chemical thermodynamics to metalurgical processing. Ferrous and nonferrous pyrometallurgy, solvent extraction, synthetic fibers, including structure development, properties. Prereq: 303. F

426 Materials Joining (3) Processes for joining metals, polymers and ceramics, welding, adhesive, fusion, solidification/crystallization, surface characteristics necessary for joining and chemical bonding; thermal effects on structure and properties of joints; design of joints. Prereq: 201.

443 Polymer Processing (3) Rheological measurements; flow through tubes and slits, including end effects and extrude swell; selected applications, including blow molding, extrusion, injection molding, synthetic fibers, including structure development, properties. Prereq: 303. F

444 Plastics Fabrication and Design (3) Lectures, laboratories and field trips; unit operations of plastics fabrication; plastics classification; design and selection criteria; processing techniques; characterization laboratory. Sp

470 Environmental Degradation of Materials (3) Mechanisms, measurement techniques and control of environmental degradation processes in metals, polymers, ceramics and composites; materials selection and design considerations. Prereq: 201. Recommended for chemical engineering, mechanical engineering, civil engineering and engineering science and mechanics majors. F

472 Fundamental Principles of Composite Materials (3) Physical principles of manufacture and application of fiber reinforced polymers, metals and ceramics. Prereq: 302 or equivalent. (Same as Engineering Science and Mechanics 297) F

474 Biomaterials (3) Metals, polymers and ceramics utilized in orthopedic, cardiovascular, and dental surgical implant devices; corrosion and degradation problems; material properties of primary importance; tissue response to synthetic materials. Prereq: 201. Recommended for engineering science and mechanics majors.

475 Fracture-Safe Design (3) (Same as Engineering Science and Mechanics 423) F

491 Materials Design I (3) Analysis of materials requirements and performance in engineering structures and components; design aspects of materials; material selection and design considerations. Prereq: 201, F

492 Materials Design II (3) Design projects involving materials selection and performance. Prereq: 491, Sp

494 Special Project Laboratory (1-3) Group or individual investigation of problems related to materials science and engineering. May be repeated once. Prereq: 201 and consent of instructor.

495 Thesis (3) Research problems in materials science and engineering with prior approval of a professor. May be repeated once. Prereq: Senior standing or consent of professor.

496 Special Topics in Materials Science and Engineering (1-3) Recent developments in materials research and development and/or applications. Prereq: Senior standing or consent of instructor.

ENGINEERING MECHANICAL (650)

331 Thermodynamics I (3) Energy and laws governing energy transformations; thermodynamic properties; thermodynamic cycles; applications to engineering problems. Prereq: Chemistry 130. Coreq: Mathematics 241. F, Sp, Su

332 Thermodynamics II (3) Properties of gases and mixtures; chemical reactions; equilibrium; compressible flow; applications to engineering problems. Prereq: 331. F, Sp, Su

341 Fluid Flow (3) Development of mass, momentum, and energy principles for fluid systems; dimensional analysis, internal and external viscous flows. Prereq: ESM 231, Mathematics 241, 242. F, Sp, Su

344 Heat Transfer (3) Heat transfer by conduction, convection, and radiation, free and forced convection. Prereq: 331, 341, 391. F, Sp, Su

345 Mechanical Engineering Instrumentation and Measurement (3) Fundamentals of measurement systems, standards; dynamic characteristics of instruments; statistical data treatment; transducers; signal conditioning; strain, pressure, temperature and flow measurements. Coreq: 363; Prereq: 341, ECE 301. F, Sp, Su


386 Manufacturing Processes (2) Processes related to design of machine parts. Casting, hot and cold forming, thermal removal and weldments. Manufacturing tolerances and surface finishes. Prereq: Materials Science 201, F, Sp

391 Engineering Analysis (4) Analysis techniques for problems of Mechanical and Aerospace Engineering. Emphasis on numerical methods including use of symbolic math and spreadsheet software packages and numerical simulations. Linear and partial differential equations. Prereq: Basic Engr. 201 and Mathematics 231, F, Sp, Su

401 Thesis (3) Problem investigation and report. Prereq: Senior standing. F, Sp, Su

415 Energy Conversion Systems (3) Fossil fuel energy conversion systems with emphasis on coal technology. Coreq: CHE 375.

422 Environmental Noise (3) Acoustics - measurements and control of noise in industrial and community environments. Prereq: Senior standing in engineering or consent of instructor.

431 Seminar (1) Topics related to engineering including enrollment in normal oral presentation by students on engineering topics. Prereq: Senior standing. F

449 Mechanical Engineering Laboratory (3) Designing, conducting and reporting results of experimental exercises. Test standards and specifications. Analysis of data and formation of conclusions. 3 hours per week. Prereq: 332, 344, 345. Coreq: 475. Sp, Su

451 Systems and Controls (3) Analytical models of physical systems; comprised of combinations of mechanical, electrical, electronic, and hydraulic systems; feedback control systems; transient and frequency response, stability analysis; non-linear control of linear systems;
ENGINETECRYSTALLOGRAPHY

201-202 Seminar (1,1) Topics related to nuclear engineering. Satisfactory/No credit.

203 Thermodynamics I (3) First law of analysis of open and closed systems and principles of ideal gases and real fluids. Introduction to second law and concept of entropy, Rankine cycle. Prereq: Mathematics 142.

301 Introduction to Nuclear Engineering (3) Nuclear systems, radioactive decay, cross sections, flux, health physics, reactor theory. Prereq: Physics 232, Mathematics 231.

305 Energy Transport (3) Development of differential and integral energy conservation; conduction and convective heat transfer including numerical methods; application to nuclear reactor fuel elements, reactor cores, and heat exchangers. Prereq: 301, Coreq: Mathematics 232.

323 Mechanical Behavior of Materials (3) (Same as Materials Science 302) Mechanical properties of engineering materials; data collection and processing; time and cyclic dependent properties. 3 hours or 2 hours and laboratory. Prereq: 301, Materials Science 302.

341 Fluid Mechanics I (3) Basic conservation laws of fluids; hydrostatics; integral forms, energy, work, similarity; viscous/turbulent flow through pipes; open channel flow; turbomachinery, performance similarity; laboratory. Prereq: 301, Mathematics 241.

404 Nuclear Reactor Theory I (3) Fundamentals of reactor reactor physics relative to critical mass, kinetics and fission, reactivity, thermal and control rods, reactor shielding, reactor core design. Prereq: 470.

406 Radiation Shielding (3) Types of radiation sources, fundamentals of gamma ray and neutron attenuation, biological effects, approximate methods of shield design, discrete ordinates methods and Monte Carlo methods. Prereq: 404.

411 Introduction to Nuclear Criticality Safety (3) Fundamentals of nuclear criticality safety; critical accident safety standards; computer programs and analysis. Prereq: 301.

413 Radiation Protection (3) External and internal dosimetry, biological effects of radiation, radiation equipment, personal protection and emergency procedures. Prereq: 301.

415 Introduction to Nuclear Criticality Safety (3) Fundamentals of nuclear criticality safety; critical accident safety standards; computer programs and analysis. Prereq: 301.

121 English Grammar Review for Non-Native Speakers (4) Comprehensive review of English grammar and sentence structures. Extensive practice in reading and writing. Required during the first semester in the University of all non-native English speaking students. Admission to this course is by the English Placement Examination A need for work in English, reading, or writing. Admission to this course is by the English Placement Exam only. A, B, C, NC grading.

131 Composition for Non-Native Speakers of English (3) Paragraph and composition organization and development with emphasis on informative and persuasive writing. Includes grammar and mechanics. Individual conferences. Admission to this course is by the English Placement Exam only. A, B, C, NC grading.

132 Composition for Non-Native Speakers of English II (3) Writing based on reading and discussion. Analysis of works of literature. Emphasis on research techniques and writing research papers. Individual conferences. Admission to this course by the English Placement Exam only. A, B, C, NC grading.

201 British Literature I: Beowulf through Johnson (3) Major literary works from three periods: Middle Ages, Renaissance, and Restoration and Eighteenth Century. Writing-emphasis course.


207 Honors British Literature I (3) Enriched section of 201 designed for students with a 3.25 or higher GPA.

208 Honors British Literature II (3) Enriched section of 202 designed for students with a 3.25 or higher GPA.

221 Literature of the Western World I: Ancient, Medieval, and Renaissance (3) Writing-emphasis course.

222 Literature of the Western World II: Enlightenment, Romantic, and Modern (3) Writing-emphasis course.

231 American Literature I: Colonial Era to the Civil War (3) Development of American literature from its beginnings to the Civil War. Writing-emphasis course.

232 American Literature II: Civil War to the Present (3) Development of American literature from Civil War to the present. Writing-emphasis course.

233 Major Black Writers (3) Black American literature as a literary tradition. Writing-emphasis course.

235 American Literature I: Colonial Era to the Civil War (3) Enriched section of 231 designed for students with a 3.25 or higher GPA.

236 American Literature II: Civil War to the Present (3) Enriched section of 232 designed for students with a 3.25 or higher GPA.

251 Introduction to Poetry (3) Poetry as a distinct literary form. Writing-emphasis course.

252 Introduction to Drama (3) Critical tools for perceptive reading of plays. Writing-emphasis course.

253 Introduction to Fiction (3) Fiction from the eighteenth through the twentieth centuries. Emphasis on novel, critical tools necessary for judging variety of fiction. Writing-emphasis course.

258 Honors Introduction to Drama (3) Enriched section of 252 designed for students with a 3.25 or higher GPA.

259 Introduction to Creative Writing (3) Practice in writing poetry and fiction, combined with study of models and techniques. Writing-emphasis course.

261 British Literature I (3) Reading and analysis of selected works of literature from the period of the Elizabethan era to the present. May not be used by English majors to fulfill the pre-1800 literature course requirement.

332 Women in American Literature (3) Women as writers and as subjects in American literature from its beginnings to the present. (Same as Women's Studies 332.) Writing-emphasis course.

333 Black American Literature and Aesthetics (3) Black American literature since 1899, with emphasis on cultural evaluations and the principles of being "American". Writing-emphasis course.

334 Film and American Culture (3) Film and American culture. May not be used by students with a 3.25 or higher GPA.

351 The Short Story (3) Emphasis on English, American, and international short stories. Open to sophomores with instructor's consent.

352 Writing Poetry (3) Introduction to writing poetry.

354 Writing Fiction (3) Introduction to writing novels and short stories.

355 Advanced Expository Writing (3) Strategies of writing personal and argumentative essays. Discussion of student and professional writing. Open to sophomores with instructor's consent.

356 Writing Drama and the Screenplay (3) Introduction to writing one-act and full-length plays, as well as screenplays.

370 Foundations of the English Language (3) Phonology, morphology, and syntax of English. History of the English language to 1800. (Same as Linguistics 371.)

372 The Structure of Modern English (3) Survey of major groups in modern, descriptive, and generative transformation—structure of modern English. (Same as Linguistics 372.)

376 Colloquium in Literature (3) Methods and objectives of literary study. Includes seminar to plan student's program in major.

381 Introduction to Folklore (3) Essential terms and concepts in modern folklore-folk-life studies. Emphasis on North American materials: folklore, folktale, myth, fable, fairy tale, riddles, riddles, modern, regional, and international. (Same as American Studies 381.)

385 English as a World Language (3) A comprehensive study of the English language, its history, development, and contemporary usage. Includes grammar and mechanics. Includes practice in reading, writing, and speaking. (Same as Foreign Language 385.)

401 Medieval Literature (3) Reading and analysis of selected medieval literature. Open to sophomores with instructor's consent.

402 Chaucer (3) Reading and analysis of the Canterbury Tales and Troilus and Criseyde in Middle English.

404 Shakespeare I: Early Plays (3) Shakespeare's dramatic achievement before 1601. Selected plays from the comedy-romantica (e.g., Twelfth Night). (Same as American Studies 381.)

405 Shakespeare II: Later Plays (3) Shakespeare's dramatic achievement between 1601 and 1613. Selected plays from the great tragedies (e.g., Othello), the problem plays (e.g., Measure for Measure), and the romantic comedies (e.g., The Tempest).

406 Renaissance Drama (3) English theatre between 1580 and 1640. Representative plays by Shakespeare's contemporaries. (Same as Shakespeare Studies 381.)

409 Spenser and His Contemporaries (3) Principal achievements in prose and poetry of sixteenth-century authors such as Spenser, Wyatt, Marlowe, More, Sidney, and Bacon.

410 Milton, Donne and Their Contemporaries (3) Principal achievements in prose and poetry of the first two-thirds of the seventeenth century (such as the poetry of Milton, Donne, Marvell, and the prose of Browne, Bacon, and Waite).

411 Literature of the Restoration and Early Eighteenth Century: Dryden to Pope (3) Survey of English literature and culture from 1660 to 1745.

412 Literature of the Later Eighteenth Century: Johnson to Burns (3) Survey of English literature and culture from 1745 to 1800.
413 Restoration and Eighteenth-Century Genres and Modes (3) Study of one major genre or literary mode such as drama, novel, poetry, non-fiction, prose, satire, romance, or caricature written between 1660 and 1800. May be repeated for credit.

414 Romantic Poetry and Prose I (3) Emphasis on Wordsworth, Coleridge, and Blake, with readings from Lamb, De Quincey, and other prose writers.

415 Romantic Poetry and Prose II (3) Emphasis on Keats, Shelley and Byron, with readings from Hazlitt, Peacock, and other prose writers.

416 Victorian Poetry and Prose I (3) Emphasis on authors such as Tennyson, the Pre-Raphaelites, Carlyle, Newman, and Mill.

419 Victorian Poetry and Prose II (3) Emphasis on authors such as Tennyson, Arnold, Hopkins, Hardy, Ruskin, Darwin, and Wilde.

420 The Nineteenth-Century British Novel (3) Major novelists from Scott to Hardy.

421 Modern British Novel (3) Includes such authors as Lawrence, Joyce, Woolf.

422 Women Writers in Britain (3) Emphasis on the literary consciousness and works of women writers Britain. (Same as Women's Studies 422.)

430 Colonial, Federal, and Early National American Literature (3) American literature from the time of the founding of the United States to the War of 1812 inclusive.

432 American Romanticism and Transcendentalism (3)

433 American Realism and Naturalism (3)

434 Modern American Literature (3) World War I to the present.

435 American Novel Before 1900 (3) From earliest sentimental novels through Brown and Cooper, and major figures to 1900, including Hawthorne, Melville, Stowe, Clemens, and James.

436 Modern American Novel (3) Authors such as Faulkner, Steinbeck, Welty.

441 Southern Literature (3) Southern writing from colonial period into the twentieth century, including frontier humorists, local color writers, and southern literary renaissance.

442 American Humor (3) Development of American humor from the early nineteenth century into the twentieth century, with particular emphasis on Mark Twain. (Same as American Studies 442.)

443 Topics in Black Literature (3) Contents vary according to particular genres, authors, or themes from 1840 to the present, including Harriet Beecher Stowe, Frederick Douglass, and other African-American writers.

444 Topics in Latin American Literature (3) Contents vary according to particular genres, authors, or themes from 1840 to the present, including Harriet Beecher Stowe, Frederick Douglass, and other African-American writers.

445 Twentieth-Century International Novel (3) Such authors as Joyce, Camus, Kafka, Nabokov.

455 Persuasive Writing (3) Persuasive strategies in student and professional writing. Practice in mastering effective logical and emotional appeals.


461 Advanced Technical and Professional Writing (3) For students planning careers in industry, education, and government who need technical writing skills. Writing of definitions, process descriptions, sets of instructions, descriptions of mechanisms, recommendation reports, abstracts, proposals, and major reports. Prereq: Junior standing in the major, concentration in the major, or instructor's permission.

462 Writing for Publication (3) Principles and practices of writing for publication. Dissertation, theses, articles, and reports in science and technology. Prereq: Should be taken after 461.

463 Advanced Poetry Writing (3) Development of skills in acquiring in advanced Poetry course. Prereq: 363 or consent of instructor.

464 Advanced Fiction Writing (3) Development of skills in acquiring in advanced Fiction course. Prereq: 364 or consent of instructor.

471 Sociolinguistics (3) Language in relation to society. Emphasis on large-scale units: tribes, nations, social groups. Prereq: 371 or 372 or Linguistics 200 or consent of instructor. (Same as Linguistics 471.)

472 American English (3) Phonological, morphological, and syntactic characteristics of major social and regional varieties of American English, with attention to their origins, functions, and implications for cultural pluralism. Prereq: 371 or 372 or Linguistics 200 or consent of instructor. (Same as Linguistics 472.)

474 Teaching English as a Second or Foreign Language I (3) Grammatical structures of English with emphasis on particular grammatical difficulties of non-native learners of English. Experiences in teaching English as a second or foreign language. Prereq: 472. (Same as Linguistics 474.)

475 Teaching English as a Second or Foreign Language II (3) Second language acquisition theories and practices for teaching the four language skills to learners of English. Materials and methods of teaching language and testing with emphasis on preparation of materials. Observations of and team teaching with experienced faculty member. Prereq: 474. (Same as Linguistics 475.)

479 Literary Criticism (3) Historical survey of major works of literary criticism.

480 British and American Ballad and Folk Tale (3) Popular ballads and folk tales of English, Scottish, and North American tradition.

481 Studies in Folklore (3) Topic varies. May be repeated with different topic. Maximum 6 hours.

482 Major Authors (3) Content varies. Concentrated study of at least one of the most influential writers in British or American literary history: e.g., Donne, Tennyson, Jane Austen, Whitman, Faulkner, Baldwin, or Lawrence.

483 Special Topics in Literature (3) Topic varies. May be repeated. Maximum 6 hours.

484 Special Topics in Writing (3) Original writing integrated with reading, usually taught by a professional author. Topics vary. May be repeated. Maximum 6 hours.

495 Introduction to Rhetoric and Composition (3) Introduction to the historical, theoretical, and empirical models of inquiry in rhetoric and their implications for the teaching of composition.

486 Senior Honors Paper (3) Intended for (but not limited to) students with a 3.2 or better GPA, this is an independent tutorial in which the student prepares and writes a documented study or creative project that is more substantial than what can be accomplished in a standard course. See the Director of Undergraduate Studies in English for details.

495 Introduction to Rhetoric and Composition (3) Introduction to the historical, theoretical, and empirical models of inquiry in rhetoric and their implications for the teaching of composition.


497 Estate and Financial Planning (3) Process of estate accumulation, safekeeping, and distribution, with particular emphasis on impact of insurance and taxation. Prereq: 301.
481 Real Estate Finance and Investment Analysis (3) Principles of financing and investing in real property. Utilizes discounted cash flow models and ratio analysis. Current federal tax laws applicable to real property. Limited partnerships and other joint ventures. (Same as Urban Studies 481) Prereq: 301.

482 Urban Development and Finance (3) Economic analysis of determination of urban land value and use, and discussion of current urban problems in the United States. Primary and secondary mortgage markets and economic and legal aspects of these markets on urban development. (Same as Urban Studies 482) Prereq: 301.

FIRST YEAR STUDIES

101 Approaches to the University (2) Integration into the academic life of the campus, including the nature and purpose of a liberal education, career planning, the organization of university disciplines, and assessment of special needs in areas such as time management, study skills, counseling, and financial aid. Satisfactory/No Credit grading only. Meets weekly.

410 Peer Mentoring Seminar (2) Designed to prepare the upperclass student to effectively mentor the freshman student. Includes theories of helping, the development of mentoring skills, cognitive and developmental theories of the college-age student, and the investigation of the problems of transition. Satisfactory/No Credit grading only. Meets weekly.

FOOD SCIENCE AND TECHNOLOGY (390)

140 The Food Industry (3) Role of the food industry in providing an adequate, safe food supply for the United States and international markets. Interaction of the food industry with governmental agencies and consumers. 2 hours and 1 lab. F

269 Meat Evaluation and Grading (2) Grading standards for cow, sheep and pig carcases and cuts. Grading for retail cuts. Quality of cuts and grades. Standards for institutional meats. 2 hours and 1 lab. F, Sp

300 Forest and Wildland Resource Economics (3) Production functions, supply-demand and market analysis; non-market programs and projects; economic analysis and decision models; investment and financial analysis; environmental economics; taxes; forest products marketing. Prereq: Economics 201 or consent of instructor. F

301 Forest and Wildland Resource Economics (3) Production functions, supply-demand and market analysis; non-market programs and projects; economic analysis and decision models; investment and financial analysis; environmental economics; taxes; forest products marketing. Prereq: Economics 201 or consent of instructor. F


323 Wood Properties and Uses (2) Wood as a biological material; detailed examination of the woody cell wall; influence of environmental and site factors on wood formation; physical and mechanical properties of wood and the relationship of the woody cell wall to these properties; wood use in important commercial products; day field trip may be required. Prereq: Botany 110 or consent of instructor. Coreq: 332 for Forestry majors. Sp

324 Wood Identification (1) Cell structure and arrangement as a tool for species identification; microscopic and hand lens identification of important commercial softwoods, hardwoods and foreign woods; laboratory procedures for making permanent slides for microscopic examination; use of pine blocks and wood samples; day field trip may be required. Prereq: Forestry, Wildlife and Fisheries 311 or consent of instructor. Coreq: 332 for Forestry majors. Sp

326 Land Management Techniques (2) Surveying techniques; road layout and construction as applied to forestry; timber harvest techniques. Prereq: FWF 313. Coreq: 306, 322, 324, 326, 329 and 330. Sp

329 Forest Resource Inventory (2) Tree, top and timber scaling and grading; land inventory and stand mapping; volume estimation. Prereq: FWF 313. Coreq: 306, 322, 324, 326, 329 and 330. Sp

340 Forest Resource Inventory (2) Tree, top and timber scaling and grading; land inventory and stand mapping; volume estimation. Prereq: FWF 313. Coreq: 306, 322, 324, 326, 329 and 330. Sp

360 Meat Science (2) Carcass characteristics of meat animals, retail cuts, quality factors and the carcass, color evaluation and meat quality. 2 hours and 1 lab. F, Sp

369 Meat Science Lab (1) Slaughter and processing methods for beef, pork, lamb, and poultry. Prereq: 360 or concurrent enrollment. Sp

401 Food Technology and Science Seminar (1-2) Concurrent enrollment. Prereq: Chemistry 100, 110, Microbiology 210. 2 hours and 1 lab. A, F

420 Food Microbiology Lab (3) Methods for examining contaminated food, dairy, fish and shellfish. Study of physicochemical methods for detecting foodborne microorganisms. Prereq: Food Microbiology 210. 2 hours and 1 lab. A, F


430 Sensory Evaluation of Food (3) Principles and methods of sensory evaluation of foods. Prereq: Basic statistics. 2 hours and 1 lab. Sp

433 Sensory Evaluation of Food (3) Principles and methods of sensory evaluation of foods. Prereq: Basic statistics. 2 hours and 1 lab. Sp

FORESTRY (396)

301 Forest and Wildland Resource Economics (3) Production functions, supply-demand and market analysis; non-market programs and projects; economic analysis and decision models; investment and financial analysis; environmental economics; taxes; forest products marketing. Prereq: Economics 201 or consent of instructor. F

306 Forest Protection (3) Coreq: 322, 323, 324, 326, 329 and 330. (Same as Entomology and Plant Pathology 308.) Sp

321 Wildland Recreation Planning and Management (3) Planning, development, and management of forest recreation resources; interpretation of forest resources. Overnight weekend field trips may be required. F


324 Forest Resource Analysis (3) Growth and yield prediction; harvest determination; goal setting under multiple criteria; computerized forest management; financial aspects of forestry with computer simulation. Prereq: Forestry, Wildlife and Fisheries 303. Coreq: 306, 322, 323, 326, 329 and 330. Sp

326 Land Measurement Techniques (2) Surveying techniques; road layout and construction as applied to forestry; timber harvest techniques. Prereq: FWF 313. Coreq: 306, 322, 323, 324, 326 and 330. Sp

329 Forest Resource Inventory (2) Tree, top and timber scaling and grading; land inventory and stand mapping; volume estimation. Prereq: FWF 313. Coreq: 306, 322, 323, 324, 326 and 329. Sp


351 Wood Properties and Uses (2) Wood as a biological material; detailed examination of the woody cell wall; influence of environmental and site factors on wood formation; physical and mechanical properties of wood and the relationship of the woody cell wall to these properties; wood use in important commercial products; day field trip may be required. Prereq: Botany 110 or consent of instructor. Coreq: 332 for Forestry majors. Sp

352 Wood Identification (1) Cell structure and arrangement as a tool for species identification; microscopic and hand lens identification of important commercial softwoods, hardwoods and foreign woods; laboratory procedures for making permanent slides for microscopic examination; use of pine blocks and wood samples; day field trip may be required. Prereq: Forestry, Wildlife and Fisheries 311 or consent of instructor. Coreq: 332 for Forestry majors. Sp

FOREST, WILDLIFE AND FISHERIES (398)

422 Forest and Wildland Resource Policy (3) Policy formulation: criteria for policy determination; forest and wildland law and regulation; theory of conflict resolution; formal and informal resolution. Prereq: Forestry, Wildlife and Fisheries 311 or consent of instructor. Coreq: 331 for Forestry majors. F

423 Wildland Recreation Planning and Management (3) Planning and management of forest recreation resources; interpretation of forest resources. Overnight weekend field trips may be required. Prereq: 321, 323, 324, 326, 329, 330. Satisfactory/No Credit only. Sp

430 Sensory Evaluation of Food (3) Principles and methods of sensory evaluation of foods. Prereq: Basic statistics. 2 hours and 1 lab. Sp

433 Wood Adhesives and Glued Wood Products (2) Theory and practice of adhesive bonding; study of the wood substrate-adhesive interface for bonding; principles of adhesion; wood adhesives; gluing of solid wood and composite wood manufacturing practices; laboratory manufacture and testing of adhesives, adhesive bond strength and glued wood product performance; day field trips may be required. Prereq: 331 and 332 or consent of instructor. 1 hour lecture and 2 hour lab. F

434 Measurement and Marketing of Wood Products (3) Measurement systems used for sale and transfer of wood products. Application of market principles and analysis to wood products markets and economic structure of wood products industry. Prereq: 431, 433 and 437. Satisfactory/No Credit only. F

435 Wood Industry Survey (1) Industry descriptions and plant visitations to include sawmills, pulp and paper, plywood, flooring, furniture and wood treatment. Day field trips may be required. Prereq: Forestry, Wildlife and Fisheries 313. Satisfactory/No Credit only. F

436 Wood Industry Survey (1) Industry descriptions and plant visitations to include sawmills, pulp and paper, plywood, flooring, furniture and wood treatment. Day field trips may be required. Prereq: Forestry, Wildlife and Fisheries 313. Satisfactory/No Credit only. F

437 Wood Industry Survey (1) Industry descriptions and plant visitations to include sawmills, pulp and paper, plywood, flooring, furniture and wood treatment. Day field trips may be required. Prereq: Forestry, Wildlife and Fisheries 313. Satisfactory/No Credit only. F

493 Independent Study in Forestry (1-15) Special research or individual problems in forestry. Letter grade or Satisfactory/No Credit only. E

495 Internship in Wildland Recreation (1-6) A highly structured field experience guided by specific learning objectives pre-approved by the instructor and the field supervisor. The student is responsible for placement and supervision. One credit per two weeks of full-time field experience. Prereq: Junior standing, Satisfactory/No Credit only. E
300 French Transition (2) Development of linguistic skills necessary for satisfactory work in courses above 300. Recommended for students who would benefit from additional training beyond 212 in basic skills of reading, speaking, and writing French. May not be counted toward the major or minor.

301-302 Elements of French for Upper Division and Graduate Students (2,2) Elements of language, elementary and advanced readings. Open to graduate students preparing for language examinations, and upper division students desiring reading knowledge of the language. Undergraduate credit only. Not for credit for those having had 111-112 or equivalent. No auditors.

311-312 History of French Literature (3,3) Chronological view of French literature in relation to the specific historical developments that have influenced it. Prereq: 212, 218 or equivalent.

313 Aspects of French Literature (3) Study of masterpieces from the great literary movements and countermovements. Prereq: 212 or equivalent.

324 Women in French Culture (3) Role of women in shaping French history and culture. Feminists (George Sand), royal mistresses (Mme de Maintenon), intellectuals (Mme de Staël); actresses (Sarah Bernhardt), scientists (Marie Curie). Taught in English. May not be counted toward the major or minor. (Same as Women's Studies 324.)

341-342 Intermediate Composition and Conversation (3,3) Grammatical analysis of modern French prose; review of grammatical principles and their application in translation from English into French, both written and oral exercises in free composition. Prereq: 212, 218 or equivalent. Either 342 or 345 may be applied toward the major, but not both.

345 French Business (3) Contemporary French language as it applies to business transactions. Understanding and composing business letters; oral communication and elements of French culture related to good business practice. Either 342 or 345 may be applied toward the major, but not both. Prereq: 341 or consent of instructor.

400-401 Consecutive and Simultaneous French-English and English-French Translation (3,3) Consecutive Translation to and from English. Introduction to simultaneous translation to English. 401-Simultaneous Translation to and from English, training of students with good knowledge of French for consecutive and simultaneous translation from French into English, and vice versa, on a variety of subjects such as business, politics, science. Prereq: 342, 345 or equivalent. Preferably taken in sequence.

410 Medieval French Literature (3) Major representative works of Medieval French Literature. Texts in modern French. Prereq: 212, 218 or equivalent. (Same as Medieval Studies 410.)

411 French Literature of the 16th Century (3) Highpoints of 16th century French literature. From Rabelais and Montaigne; reading of poems from the writers from Lyons and members of the Pleiades. Prereq: 212, 218 or equivalent.


413 French Literature of the 18th Century (3) Major works of the Enlightenment. Prereq: 212, 218 or equivalent.


416 Survey of Francophone Literature (3) Introduction to literature in French outside of France. Prereq: 212, 218 or equivalent. Can be applied to major. Writing-emphasis course. (Same as Cinema Studies 420.)

421 Phonetics (3) Foundation in the science of phonetics. Practical exercises and individual performance. Laboratory training highly recommended. Students from departments outside in Romance Languages may take this course for graduate credit. Graduate credit is not offered to students majoring in the Department of Romance Languages. Prereq: 212, 218 or equivalent.

422 Advanced Grammar (3) Improving one's own style studying basic and more refined structures of the French language. Writing creative free-style compositions. Prereq: 342 or 345.

423-424 Advanced Conversation (1,1) Informal conversation with native speaker on contemporary topics. Stress in class contact rather than intensive out-of-class preparation. Meets two hours a week for one semester credit. Prereq: 342 or 345.

425 Introduction to Descriptive Linguistics (3) Phonetics and phonemics, morphology and syntax. Types of languages, linguistic groups, dialects, and dialectology. Application of descriptive linguistics—field linguistics, dialect study; its practical use in learning languages and in language teaching. Introduction to transformational grammar. Prereq: six hours of upper division English or six hours of upper division courses in a modern or ancient language (exclusive of German and French). Prereq: 301-302, courses in literature in translation, and general courses in Latin and Greek requiring no knowledge of the languages, or consent of department. (Same as German 425, Russian 425, Spanish 425 and Linguistics 425.)

426 Methods of Historical Linguistics (3) (Same as Russian 426, German 426, Spanish 426 and Linguistics 426.)

427 Romance Linguistics (3) Development of Classical Latin through Vulgar Latin into major Romance languages. (Same as Spanish 426 and Linguistics 429.)

430 Theatrical French (2-3) Performance in one or more French plays. Prereq: 212, 218 or equivalent and consent of instructor. Can be applied to major.

431 Highlights of French Civilization (3) Survey of French Civilization from the Gauls to World War II. Historical events, daily life, all forms of arts. Prereq: 212, 218 or equivalent. Writing-emphasis course.

432 Contemporary French Culture (3) French contemporary civilization and culture since World War II. Problems, trends and organization of French society today. Prereq: 212, 218 or equivalent.

433 Literary Portraits of French Women (3) This course is designed to acquaint students with a variety of French women writers, beginning with women of different social backgrounds and of complex personalities. Not for major or minor credit in French. (Same as Women's Studies 433.)

434 Literature of Quebec (3) Survey of literature of Quebec as well as French literature connected with North America. Reading include explore and missionary works, such as the Voyages of Champlain and the Journals of the Jesuits. May be applied to major in contemporary Quebec. Prereq: 212, 218 or equivalent.

440 Capstone Experience in French (4) Synthesizing senior colloquium and tutorial in which students reflect on the raison d'être of the discipline from a multidimensional point of view. Writing-emphasis course.

491 Independent Study (1-15)

492 Off-Campus Study (1-15)

493 Foreign Study (1-15)

GEOGRAPHY (415)

101-102 World Geography (3,3) Selected topics and world regions, especially those with problems or situations of contemporary concern. Designed to illustrate geographic principles, case studies, concepts, and techniques. Must be taken in sequence.

107 Honors: World Geography (3) Designed for freshman and sophomore students of superior ability who are
interested in exploring geographical interpretations of various world problems and issues. Enrollment limited. Prereq: Open to freshmen only. A minimum score of 25 on the ACT or a verbal score of 540 or better on the SAT; and to sophomores with a cumulative GPA of 3.2 or higher. Geology 101 may be substituted for Geography 101 in the 101-102 sequence. Students may not receive credit for both Geography 101 and 107.

131-132 Geography of the Natural Environment (4,4) Characteristics and processes of the earth's surface and lower atmosphere; their interaction to produce a world pattern of distinctive environments significant to human- 

320 Cultural Geography: Core Concepts (3) Background and method of cultural geography; basic concepts and theories focusing on cultural landscape, culture regions, cultural ecology, interaction and diffusion, cultural integration, and world patterns of cultural phenomena.

323 Behavioral Geography (3) Types of human behavior; such as shopping, territoriality, commuting, residential mobility, and social interaction through maps or other graphic material. Prereq: Open to students who have taken 300. Prereq: 131 is prerequisite to 132.

310 Introduction to Maps, Aerial Photographs, and Cartography (3) Properties, sources, uses, design and production of maps, aerial photos, and other spatial images useful for geographical analyses. 2 hours lecture and 2 hours lab per week.

320 Cultural Geography: Core Concepts (3) Background and method of cultural geography; basic concepts and theories focusing on cultural landscape, culture regions, cultural ecology, interaction and diffusion, cultural integration, and world patterns of cultural phenomena.

325 Geological History of Land Organisms (3) Origin and evolution of land organisms. Prereq: 102 or permission of instructor.

421 Geography of Folk Societies (3) Geographical study of folk culture, emphasizing traditional material culture and rural settlement. Writing emphasis course.

439 Plant Geography of North America (3) Characteristics of the vegetative vegetation of North America, including the variation of plant communities with altitude, climate, and geology. Prereq: 131-132 or consent of instructor.

413 Remote Sensing: Types and Applications (3) Principles and uses of remote sensing imagery, digital data, and spatial data, with particular emphasis on geographic interpretation and mapping techniques. Prereq: 310 or consent of instructor.

415 Quantitative Methods in Geography (3) Geographic application of statistical techniques, point pattern analysis, and analysis of aerial units. Prereq: Mathematics 115.

419 Practicum in Cartography/Remote Sensing (2-6) Supervised practice in design and production of maps and other spatial images useful for geographical analyses. 2 hours lecture and 2 hours lab per week.

420 The Dynamic Earth (4) Physical processes within the Earth's surface, including the formation of rocks, plate tectonics and earthquakes, and landscapes. Must be taken in sequence. 3 lecture hours and one 2-hour lab or field period.

421 Geography of Folk Societies (3) Geographical study of folk culture, emphasizing traditional material culture and rural settlement. Writing emphasis course.

422 Geography of Folk Societies (3) Geographical study of folk culture, emphasizing traditional material culture and rural settlement. Writing emphasis course.

424 Geography of Folk Societies (3) Geographical study of folk culture, emphasizing traditional material culture and rural settlement. Writing emphasis course.

425 Historical Geography of the United States (3) Survey of the changing population patterns, development of agricultural regions, and patterns of urban-industrial development. Prereq: 301 or consent of instructor.

433 The Land-Surface System (3) Characteristics of surface form, water, vegetation, and surface materials, and their regional interrelationships. People as evaluators and agents of change. Prereq: 131-132 or consent of instructor.

434 Climatology (3) General circulation system leading to world pattern of climates. Climatic change and modification and interrelations of land and air mass activity. Prereq: 131-132 or 334 or consent of instructor.

435 Biogeography (3) Study of the changing distribution patterns of plants and animals on a variety of spatial and temporal scales. The effects of continental drift, Pleistocene climatic change, and human activity on world flora are emphasized. Prereq: 131-132 or 330 or consent of instructor.

436 Water Resources (3) Global water resources and hydrologic processes, including water availability, food security, and water quality issues examined from physical and geographic perspectives. Prerequisite: 131-132 or consent of instructor.

437 Geography of Europe (3) Physical, cultural, and economic characteristics of Europe. Emphasis on the geographical dimensions of change in contemporary Europe. Writing emphasis course.

438 Geography of the Middle East (3) Physical, cultural, and economic characteristics of the Middle East. Writing emphasis course.

439 Plant Geography of North America (3) Characteristics and distribution of major plant communities of North America, the U.S., Mexico, and Central America. Relations between climate, soil, fire, and human disturbance. Long term historical processes and their effects. Prereq: 131-132 or course work in botany and consent of instructor.

441 Urban Geography (3) Concepts and theories concerning development and significance of systems of cities and internal morphology of cities. Prereq: 101-102 or 141 or 340 or consent of instructor. (Same as Urban Studies 441.)

443 Rural Geography (3) Geographical appraisal of rural areas of the United States, including small towns and urban fringes. Problems and potentials of rural America. Prereq: 101-102 or 141 or 340 or consent of instructor.

448 Geography of Resources (3) Factors related to variations in resource availability from time to time and place to place, with particular emphasis upon energy and metallic resources. Prereq: 101-102 or 141 or 340 or consent of instructor.

449 Geography of Transportation (3) Examination of transportation systems, emphasizing their effects on land use patterns, land use location, and development. Prereq: 141 or 340 or consent of instructor.

450 Process Geomorphology (3) (Same as Geology 450.)

491 Foreign Study (1-15) Prereq: Written consent of department required prior to registration. S/NC or letter grade.

492 Off-Campus Study (1-15) Prereq: Written consent of department required prior to registration. S/NC or letter grade.

493 Independent Study (1-15) Prereq: Written consent of department required prior to registration. S/NC or letter grade.

499 Proseminar in Geography (3) Major themes in geography, especially trends over the past 40 years. Limited to majors. Not open to graduate students. Prereq: Senior standing and completion of at least 12 hours of major or minor requirements in geography. Writing emphasis course.

GEOLGY (424)

101 The Dynamic Earth (4) Laboratory and field emphasis to understanding biosphere, evolution, and ecological processes, including the formation of rocks, plate tectonics, earthquakes, and landscapes. Must be taken in sequence. 3 lecture hours and one 2-hour lab or field period.

102 Earth, Life and Time (4) Fossils, evolution and ancient environments, plus a review of 4.5 billion years of earth history. Must be taken in sequence. 3 lecture hours and one 2-hour lab or field period.

103 The Earth's Environments (4) Contemporary problems and solutions related to human disturbance of the environment. Topics include: global climate change, pollution, resource depletion. Prereq: 101. 3 lecture hours and one 2-hour lab or field period. Fulfills laboratory science sequence requirement for College of Liberal Arts.

107 Honors: The Dynamic Earth (4) Laboratory and field emphasis to understanding biosphere, evolution, and ecological processes, including the formation of rocks, plate tectonics, earthquakes, and landscapes. 3 lecture hours, 1-hour lab, and 2 field trips. Consent current College of Liberal Arts guidelines. Students may not receive credit for both Geology 101 and 107.

108 Honors: Earth, Life, and Time (4) Laboratory and field emphasis to understanding biosphere, evolution, and ecological processes, including the formation of rocks, plate tectonics, earthquakes, and landscapes. 3 lecture hours, 1-hour lab, and 2 field trips. Consent current College of Liberal Arts guidelines. Students may not receive credit for both Geology 102 and 108.

201 Biodiversity: Past, Present, and Future (3) Introduction to how biodiversity has changed through time, especially past mass extinctions and current extinctions from human activities. Topics include measurement of biodiversity, how biodiversity originates, and the dynamics of extinction. May not be applied toward the Geology major.

202 Earth as an Ecosystem: Modern Problems and Solutions (3) Study of the earth as an integrated system between physical and biological processes. Focus is on human disturbance and the processes and solutions related to human disturbance of the environment. May not be applied toward the Geology major.

203 Geography of National Parks (3) Geologically spectacular landscapes and geographic history of national parks of the world. Humans attempt to preserve the Earth's geologic heritage. 3 lecture hours, plus a field trip during the term. May not be applied toward the Geology major.

210 Basic Geology for Engineers (2) Materials and structures of the earth. For College of Engineering students only. 2 lecture hours and one 2-hour lab or field period.

310 Mineralogy (4) Introduction of crystallography, crystal chemistry, x-ray diffusion, optical mineralogy, and the structures of rock-forming minerals. Laboratory identification and identification, x-ray diffusion techniques, and microscopic identification of minerals. Prereq: 101, Chemistry 120-130 or equivalent. 3 hours lecture and 1 lab.

320 Paleobiology (3) Fossils and their uses in functional morphology, paleoecology, biogeography, bioturbation, and evolution. Prereq: 102 or consent of instructor. 2 lecture hours and one 2-hour lab or field period.

325 Geographic History of Land Organisms (3) Origin and development of forms and areas of land and water through time with emphasis on the fossil record present record of land plants and vertebrates. Prereq: Elementary biology sequence or consent of instructor. 2 lecture hours and one 2-hour lab or field period.
330 Igneous and Metamorphic Petrology (3) Classification and properties of igneous and metamorphic rocks, the processes that form them, and the tectonic environments in which they form. Prereq: 310, 2 lecture hours and one 2-hour lab.

340 Stratigraphy and Sedimentation (3) Stratigraphic principles and practices; physical sedimentary processes and interpretations of depositional environments. Prereq: 101, 102 and 310. 2 lecture hours and one 2-hour lab or field work.

345 Geology of East Tennessee (1) Geology of the Southern Appalachians in Tennessee. Prereq: Completion of core courses or consent of instructor. 1 lecture hour plus field trips.

370 Structural Geology (4) Common geologic structures (faults, folds, cleavage) and their genesis. Laboratory includes map interpretation, cross-sections, projections, stereonets, etc. Prereq: 310; Math 141-142 and one of the following: Physics 151 or Basic Engineering 121. 3 lecture hours and one 2-hour lab.

380 Resources Crises - Minerals and Energy (3) World and United States resources of minerals and energy, price and production trends, future supply of minerals and energy, national mineral and energy policies. Emphasis on appraisal of conventional and alternative energy resources.

401 Quantitative Methods in Geology (3) Applications of calculus and differential equations to problems in the earth sciences. Examples of the diffusion equation in hydrogeology, the wave equation in geophysics, mechanical modeling and boundary conditions in structural geology and tectonics. Prereq: 101-102 or 107-108, Mathematics 141-142. 3 lecture hours.

410 Advanced Mineralogy (3) Crystal chemistry of the rock-forming minerals. Interaction of electromagnetic radiation and crystalline solids. Optical properties of minerals, visible and infrared spectroscopy, and x-ray diffraction. Laboratory exercises emphasize the section and x-ray diffraction methods of mineralogy. Prereq: 310, 2 lecture hours.

420 Paleocology (4) Principles of ecological analysis as applied to fossil and fossil assemblages with emphasis on data collection and interpretation. Laboratory is designed around preparation of scientific reports based on field and laboratory analysis. Writing emphasis course. 3 lecture hours and one 2-hour lab.

421 Invertebrate Paleontology (3) Survey of invertebrate animal phyla, with emphasis on skeletal structure and preservation, functional morphology, ecology, and stratigraphic distribution. Prereq: 320 or consent of instructor, 2 hours and two 2-hour labs.

440 Field Geology (5) Summer field course for advanced undergraduate geology majors and first-year graduate students. Taught off-campus and requires the full time of the student. The course provides a synthesis of the major aspects of the geological sciences in a field setting. Problems are demonstrated and practiced, and applied to the solution of geologic problems. Prereq: Completion of other major core courses (310, 320, 340, 370) and consent of instructor.

445 Regional Geology of the United States (3) Evolution of geologic provinces within the United States with emphasis on the integration of several types of geologic data. Prereq: 330, 340, 370. 3 lecture hours.

450 Process Geomorphology (3) Integrative approach to the development of the Earth's surface based upon case histories, maps, remote sensing imagery, 2 lecture hours and one 2-hour lab. Prereq: 101-102. (Same as Geography 450.)

455 Basic Environmental Geology (3) Applications of the geological sciences toward a comprehension of the effects of geological processes on humans and the effects of human activities on the earth's environments. Prereq: 121-122 and 310, 2 lecture hours and one 3-hour lab or field period.

460 Principles of Geochemistry (3) Application of chemical principles to geologic problems. Emphasis on crystal chemistry and relation between basic atomic structure and physical behavior of elements in the Earth's crust. Prereq: Chemistry 120-130; recommend Geology 330. 2 lecture hours and one 2-hour lab.

470 Applied Geophysics (3) Basic principles of geophysical exploration, with emphasis on applications to environmental problems. Includes seismic and electromagnetic methods. Prereq: 6 hours of geology courses numbered above 300, Physics 221-222, 3 lecture hours.

471 Fieldwork in Geophysics (2) Summer field course for advanced undergraduate or graduate students. Taught off-campus and requires the full time of the student for 2 or more weeks. Geophysical investigations applied to the solution of a problem in tectonics, hydrogeology, or glacial environment. Prereq: 470 or consent of instructor.

475 Physical and Chemical Systems of the Earth (3) Development of the physical Earth from the solar nebula to the present; formation, composition and evolution of the hydrosphere, crust, mantle, and core. Interdependence of earthquakes, volcanism, plate tectonics, geomagnetism, chemical and isotopic processes of the interior, and the Earth's temperature. Historical perspective on major controversies of the past, and problems unresolved today. Writing emphasis course. Prereq: 16 hours of geology above 300 and above. 2 lectures and 1 discussion period.

480 Principles of Economic Geology (4) Ore-forming processes, classification of mineral deposits, survey of different types of mineral deposits with examples, and metallogenesis. Prereq: 310 and 330 or equivalents. Recommended: 460, 3 lecture hours and one 2-hour lab.

485 Principles of Geohydrology (3) Ground water flow, aquifer analysis, ground water contamination, and groundwater management. Prereq: 101 or equivalent, or consent, Chemistry 120-130 or equivalent, and Mathematics 141-142 or equivalent. (Same as Civil Engineering 485.)

490 Special Problems in Geology (1-3) Directed study or special topics. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

491 Foreign Study (1-15) Taught off-campus, and requires the full time of the student. No credit for students who have completed 101-102 or 107. 332 may be repeated only once for credit. A, B, C, no credit grading.

492 Off-Campus Study (1-15) Taught off-campus, and requires the full time of the student. No credit for students who have completed 101-102 or 107. 332 may be repeated only once for credit. A, B, C, no credit grading.

493 Independent Study (1-15) Taught off-campus, and requires the full time of the student. No credit for students who have completed 101-102 or 107. 332 may be repeated only once for credit. A, B, C, no credit grading.

494 Foreign Study (1-15) Taught off-campus, and requires the full time of the student. No credit for students who have completed 101-102 or 107. 332 may be repeated only once for credit. A, B, C, no credit grading.

495 Business German (3) German used in fields of business, government, administration and economics. Prereq: 6 hours of upper-division German excluding translation project. Open to graduate students preparing for language examination, and upper-division students desiring intensive knowledge of language. Under-graduate credit only. No credit for students who have completed 101-102 or 107. 332 may be repeated only once for credit. A, B, C, no credit grading.

496 Modern German Culture (3) German culture from the sixteenth century to the present: customs, art, music, literature, society, state. Readings in English for non-majors and in German for majors. Major credit, but no foreign language credit. A writing emphasis course. Fulfills Upper-Level Distribution Requirement for Foreign Studies for those who have not satisfied the history requirement with Western Civilization. Writing-emphasis course.

497 Senior Honors (1-6) Admission by consent of department. May be repeated. Maximum six hours.

GREEK

121-122 Beginning Greek (3,3) Must be taken in sequence.
HEALTH (449)

110 Personal Health and Wellness (3) Information and behavior necessary to approach health and wellness scientifically and to develop confidence in judgments affecting personal health and wellness. E

200 Seminar in Human Sexuality (2) Problems and responsibilities of being male and female as they relate to health and wellness. Satisfactory/No Credit only, F, Sp

225 Alcohol/Drugs and the College Student (2) Problems related to use and abuse of substances potentially harmful to health and wellness. Covers alcohol, drugs, tobacco and other substances. Satisfactory/No Credit only, F, Sp

230 Cardiopulmonary Resuscitation (2) Theory and skills to implement basic cardiac life support following cardiac arrest due to such conditions as heart attack, drowning, electrocution, suffocation, poisoning, drug intoxication, and vehicular and other accidents. Educational and preventative aspects of controlling cardiovascular disease. Leads to basic life support certification. F, Sp

300 Health Education, Promotion, and Behavior (3) Health education goals, roles, target populations in school, community and health care settings; health careers and employment, health behavior and intervention techniques; health appraisal techniques; health promotion strategies. F

305 Health of Adolescents (3) Profile of health needs, interests, and behaviors of adolescents and attention to the roles and functions of practitioners relating to youth and youth culture.

306 Health Instruction in Elementary Grades (3) School health program for the child in elementary grades. Teachers become familiar with organizing and presenting health content, health materials, health curricula, school health program for the child in elementary grades. Prereq: Admission to Teacher Education Program, F, Sp

310 Advanced First Aid and Emergency Care (3) Theory and practice of first aid and emergency care. Provides essential information for developing functional first aid capabilities of lay persons. Course leads to Advanced First Aid and Emergency Care certification. Applicant must be at least 18 years old for certification. E

325 Health Education Program Planning (3) Principles of curriculum development, administration, implementation, methodology, and evaluation. F

330 Wellness Through Health, Leisure and Physical Activity (3) Emphasis on taking personal responsibility for one's health. Includes topics related to the healthy lifestyle, and provides specific guidelines of how to change inappropriate behaviors. (Same as Physical Activity 330). Sp

375 Health Communications (3) Communication strategies for health educators in various settings. Emphasis on interpersonal relationships, public relations, leadership, small group processes, health teams, and effective use of media. Sp

380 Research and Grant Writing (2) Study and application of research methods and grant writing techniques for health education programs. Skills for reading and interpreting journal and research articles. Exercises and student projects to develop a research or grant proposal. Emphasis on development and review processes.

400 Consumer Health (3) Major consumer health care providers and health care services; selecting, purchasing, evaluating and financing medical and health care services/products. (Same as Public Health 400). Sp

405 Alcoholism and Alcohol Education (3) Factors which make alcoholism a serious health and safety problem. Various types of instructional/educational and intervention programs. F

406 Death, Dying and Bereavement (3) Aspects of dying, death and handling the trauma of loss. Medical, financial, physical, legal and social implications of death. F, Sp

410 Pre-Internship Seminar (1) Objectives and policies of the internship program. Must be completed the term immediately preceding the internship. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only, Sp, Su

414 Fitness Testing and Exercise Prescription (3) (Same as HIPS 414)

420 Sex Education as it Relates to Human Sexuality (3) Science of human sexuality. Emphasis on the trends, issues, content of sex education. F, Su

423 Women's Health (3) Factors influencing women's health and women as consumers in nation's health service delivery systems. Nursing health promotion, concerns of women and techniques for prevention, maintenance and/or correction. (Same as Women's Studies 423). F, Sp

430 Suicide and Crisis Intervention (3) Factors which make suicide a serious health problem. Assessment, intervention, and prevention techniques. Sp

435 Substance Use and Abuse (3) Drug and alcohol abuse problems and suspected causes; pharmacology of drugs and effects on society; strategies for intervention and education. Sp, Su

465 Aging and Health (3) Aging process in a health perspective as it relates to health promotion and wellness of the aged. F, Sp

470 Special Topics (1-3) For advanced students, teachers, school administrators, nurses and other para-medical personnel. Only F, Sp, Su

475 Directed Independent Studies (1-3) Individual identification and study of a health/wellness or health promotion problem/issue. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

479 Internship I: Grades 7-12 (3-6) Methods and theories of teaching. Internship is completed in local public schools. Application for internship should be made upon admission to Teacher Education Program. Prereq: 410 and admission to Teacher Education Program. Satisfactory/No Credit only, Sp

482 Internship II: Grades 7-12 (3-6) Demonstration of professional competence in planning, instruction, and classroom management. Internship is completed in local public schools. Prereq: 481 and admission to Teacher Education Program. Satisfactory/No Credit only, Sp

483 Field Practice (10) Off-campus health internship or field practice in an educational or other agency with qualified professional. Prereq: Consent of instructor. Satisfactory/No Credit only, E

HISTORY (462)

151-152 Development of Western Civilization (3,3) Historical survey of the civilization of the western world. 151-Ancient world to 1715. 152-1715 to present. Writing-emphasis course.

157-158 Honors: Development of Western Civilization (3,3) Consent of department required. 157-F; 158- Sp. Writing-emphasis course. Students will attend the appropriate 151-152 lectures and the designated honors discussion section.

162-161 A History of World Civilization (3,3) Historical survey of world civilization, 161-Origins to 1500. 162-1500 to present. 161-1500 to present. 162-1626. Sp-Writing-emphasis course.

185-184 African-American History: An Introduction (3,3) African-American experience to 1890. Traditional African societies from which African-Americans emerged; evolution of prejudice and racism in America; institution of slavery; free Negroes; Civil War and Reconstruction. 185-188 African-American experience from 1890. The African-American struggle for political, civil, and social equality; leaders of the struggle, their philosophies and programs; response of Black community institutions to the challenge; the rise and decline of the urban ghetto; The Civil Rights and Black Power movements.

251-252 History of the United States (3,3) 251-Settlement to 1877. 252-1877 to present. E

257-258 Honors: History of the United States (3,3) 257-Pre-Revolution to 1877. 258-1877 to present. E

259-260 Internship If: Grades 7-12 (3-6) Demonstration of the theories of teaching. Internship is completed in local public schools. Application for internship should be made upon admission to Teacher Education Program. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

301-311 The Ancient World (3,3) 301-Development of Athenian democracy: its successes and failures; political philosophy of the fourth century B.C.; emergence of hellenistic civilization. 311-Origin of Roman imperialism and its consequences: militarism, empire, socioeconomic changes, constitutional crises, emergence of military and political autonomy.

312-313 Medieval History (3,3) 312-Early Middle Ages, 313-Later Middle Ages. Formation of medieval institutions. 313-Later Middle Ages 1100-1400. Height of medieval civilization, and its waning in the fourteenth century. (Same as Medieval Studies 312-313)

314 Renaissance Europe (3) The period traditionally known as the transition from the Middle Ages to the modern world. Interrelationship of cultural, social, economic, political and intellectual developments, with an emphasis upon historical interpretation.

315 Reformation Europe, 1500-1650 (3) The period during which Europe witnessed religious disunity, economic dislocation and insecurity, political centralization, intellectual skepticism, the origins of modern science, warfare, and the witch craze. (Same as Religious Studies 315)

316 Early Modern Europe, 1650-1800 (3) Dynamic conflict of a search for order in an age of revolutions, seen in the continued push for political centralization, the impact of the scientific revolution, the intellectual flowering known as the "Enlightenment", and the English and French revolutions.

319 Modern Europe, 1750-1914 (3) Political, industrial and intellectual revolutions against traditions. Topics include modern population explosion, urbanization, the political emergence of the middle class and the masses, nationalism, imperialism, rationalism and revolution, as well as social thought and politics. Writing-emphasis course.

320 Contemporary Europe, 1900-Prent (3) The transformation from industrial to post-industrial society and the transformation of the European nation-state. Topics include war and the consequent political and social instability; totalitarianism; decolonization; the impact of Freud, Einstein and existentialism; welfare states, and the problems of European unification. Writing-emphasis course.

321 New Testament Origins (3) (Same as Religious Studies 321)

322 Christian Thought (3) (Same as Religious Studies 322)

330-331 History of England (3,3) 330-to 1668. 331-1668 to the present. Medieval state, church and society; emergence of Anglo-American law, the monarchy and parli- mentary government, the Reformation, 17th Century revolutions, commercial, agricultural and industrial revolu- tions, conflict, empire, the welfare state, world wars, economic crisis.

332-333 History of France (3,3) 332-The emergence of modern France from the Renaissance to 1768. 333-France since the Revolution, 1789 to present.

334-335 History of Germany (3,3) 334-Germany I, to 1815. The rise and rise of the German lands, from the medieval empire to its disintegration, through dynastic and religious real-
HOTEL AND RESTAURANT ADMINISTRATION (551)

120 Introduction to Hotel and Restaurant Administration (2) History and place of industry in national economy; basic operating systems, organization structure, pricing, marketing, service. Coreq: Micro 410 or consent of instructor. Prereq: 120.

126 Front Office Management (3) Front office procedures within context of overall operation of the hotel/motel; includes reservation systems, equipment, accounting procedures, settlement procedures, public relations, and management. Coreq: 321; or 322.

220 Foodservice Systems Administration (3) Management concepts, processes, resources in foodservice systems; decision-making and problem solving principles.

230 Quantity Food Procurement, Production and Service (3) Principles for determining needs, procuring, storing, producing and serving foods in volume. Prereq: 120, 220, NTR 100 or 107, NTR 101, Micro 210 or PH 310; progression into HRA program or consent of the instructor. Coreq: 321 or 322.

231 Quantity Food Procurement, Production and Service Laboratory (1) Application of principles in determining needs, procuring, storing, producing and serving foods in volume as they apply in the hotel/motel industry. Prereq: 120, 220, NTR 100 or 107, NTR 101, Micro 210 or PH 310; progression into HRA program or consent of the instructor. Coreq: 320.

232 Quantity Food Procurement, Production and Service Observation (1) Application of principles in determining needs, procuring, storing, producing and serving foods in volume as they apply in the hotel/motel industry. Prereq: 120, 220, NTR 100 or 107, NTR 101, Micro 210 or PH 310; progression into HRA program or consent of the instructor. Coreq: 321.

236 Tourism and Travel Administration (3) Economic and social forces influencing domestic and international tourism; services, functions of retail, wholesale travel agencies. Prereq: 120; progression into HRA program or consent of the instructor.

236 Food and Lodging Cost Control (3) Budget, cost analysis, computer, financial statement use in decision making in lodging and foodservice systems. Prereq: 320, 321 or 322; Accounting 202 or consent of instructor.

420 Field Experience in Hotel and Restaurant Administration (6) Supervised educational experiences in selected tourism, food and lodging operations followed by a two-day seminar. Students enrolled in this course may not enroll in any other courses. Prereq: 320, 321 or 322; Accounting 202; Economics 201; Marketing 301; Business Law 301; 100 hours of verifiable work experience. Satisfactory/No Credit only.

422 Food and Lodging Personnel Development (3) Training programs; personnel management procedures and policies involving human resource analysis for lodging and foodservice systems. Prereq: 320, 321 or 322; or consent of the instructor.

423 Hospitality Sales and Marketing (3) Strategic marketing for lodging and restaurant organizations; includes product, property, market, and competition analysis; promotion and sales planning; internal and external sales and marketing. Prereq: 320 or 321; or consent of the instructor. Prereq: 320, 321 or 322; Accounting 202; Economics 201; Marketing 301; progression into HRA program or consent of the instructor.

424 Advanced Hotel and Restaurant Administration (3) Integration of functional areas. Management level administrative processes and decision making concerning hotel and restaurant business policy, strategy formulation, implementation, and evaluation. Prereq: 320, 321 or 322; Accounting 202; Economics 201; Marketing 301; Business Law 301; 100 hours of verifiable work experience.

425 Hospitality Law (3) Legal rights and responsibilities of staff, management, and guests. Prereq: 320, 321, or 322; Bus. Law 301 or consent of the instructor.

426 Convention Management (3) Scope and segments of convention management including requirements relating to facility space, methods and techniques for outstanding service. Prereq: 320, 321, 322 or consent of the instructor.

440 Special Topics: Hotel and Restaurant Administration (1-3) Developments, issues and problems in hotel and restaurant management; management information systems; hotel and restaurant operation. Prereq: Junior or Senior Standing in Hotel and Restaurant Administration Program or consent of the instructor. May be repeated. Maximum 3 credits.

494 Directed Study: Hotel and Restaurant Administration (3) Individual study; faculty participation. Prereq: Junior and Senior Standing, consent of the instructor. Satisfactory/No Credit only.

497 Honors: Hotel and Restaurant Administration (1-3) Senior project. Prereq: Senior standing, consent of the instructor. Satisfactory/No Credit only.

HUMAN ECOLOGY (520)

100 Special Topics in Human Ecology (1-3) Topics variable, Prereq: Consent of the instructor. Satisfactory/No Credit only. May be repeated. Maximum 3 credits.

201 Field Experience in Family Life School-based Programs (1-3) May be repeated. Maximum 3 hours. Satisfactory/No Credit only.

210 Microcomputer Applications (3) Introduction to microcomputer systems. Computer programs, word processing, and graphics programs; design of a management information system; spreadsheets, word processing, and databases. Prereq: Declared major in College of Human Ecology.

325 Strategies for Facilitating Learning (4) Methods and techniques for facilitating learning, developing individual plans for reaching goals. Includes field experience. Prereq: CFS 205.


445 Field Experience in Community-Based Programs (1-15) Placement in community-based programs or businesses. Includes seminar. Prereq: Consent of instructor. Maximum 15 hours. Satisfactory/No Credit only.

460 Directed Study: Human Ecology (1-3) Topic arranged. Includes seminar with individual student under supervision of faculty. May be repeated with different topic. Maximum 6 hours. Prereq: Junior or Senior Standing in a major in the College of Human Ecology and consent of instructor.

497 Honors: Home Ecology (3-6) Issues or topics affecting areas within Human Ecology. Designed to meet particular interests of the student Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

HUMAN PERFORMANCE AND SPORT STUDIES (526)

100 Orientation to Physical Education (2) Overview of the professional and disciplinary areas in physical education with special emphasis on introductory field experiences. Prereq: Taken the first semester in the student's major.

102 PE Major: Basketball (1) Fundamentals of basketball, including individual and team skills with consideration of techniques for effective teaching of this fundamental. Prereq: Consent of instructor.

103 PE Major: Tennis (1) Development of skills, rules and game strategies in tennis applying skill analysis and various styles of teaching.

104 PE Education Major: Gymnastics (1) Beginning skills in tumbling and on selected men's and women's gymnastics apparatus. Tumbling skills include forward, backward, and balance skills. Apparatus include vault, balance beam, and pommel horse. Special emphasis on teaching techniques, safety, progression, and spotting.

105 PE Major: Folk and Square Dance (2) Basic folk and square dance steps; patterns and designs with emphasis on skill development, terminology, etiquette and teaching techniques.

106 PE Major: Track and Field (1) Basic skills of track and field with consideration of techniques for effective teaching.

260 Exercise Science Practicum I (1) First practical experience to support and clarify career goals. Satisfactory/No Credit grading only. Prereq: 100.

271 PE Major: Soccer/Softball (1) Basic fundamentals, including individual and team skills with consideration of techniques for effective teaching.

272 PE Major: Volleyball (1) Elementary and intermediate volleyball skills, general rules, and strategy related to the game of volleyball with particular emphasis on teaching techniques and skill development.

273 PE Major: Golf (1) Fundamental skills, general rules, and strategies related to the game of golf with emphasis on skill development and teaching techniques.

274 PE Major: Gymnastics II (1) Beginning skills in tumbling and on selected men's and women's gymnastics apparatus. Tumbling skills will include twisting skills, kips, and combinations of previous skills. Apparatus will include uneven bars, horizontal bar, parallel bars, and still rings.

275 PE Major: Ballroom Dance (2) Basic ballroom dance patterns and designs, terminology and etiquette with application to the value of the dance in teaching.

276 Fitness for Life (2) Evaluation and discussion of factors related to optimal health: cardiorespiratory function, muscular strength and endurance, flexibility, low back function, nutrition, and stress. Emphasis on evaluation of current status with recommendations for change toward reasonable health-related goals. (Same as PE 276.)

290 Human Motor Behavior (3) Theories and principles explaining motor behavior; psychological factors and their relation to and/or affecting motor skill acquisition and performance. Prereq: At least sophomore standing.

291 Sport in American Society (3) For all university undergraduates on the study of sport in American society from a sociological perspective. (Same as Sociology 291.)

292 Field Studies I (2) Peer teaching, using selected styles, and systematic observation of motor behaviors of physical education students in elementary, middle, and high school settings. Prereq: 100.

311 Coaching Football (1) Theoretical and practical application of various coaching techniques in football for the prospective secondary/college coach. Includes analysis and selection of appropriate game plans, specific conditioning and training programs, practice organization, player evaluation, scouting, individual and team offense and defensive. Prereq: Consent of instructor.

312 Coaching of Basketball (1) Individual and team fundamentals for the high school coach; conditioning, skill development, and other business arrangements. Prereq: Consent of instructor.

313 Coaching of Track and Field (1) Coaching methods and training techniques for various track and field events, including experience observing and working at meets and practices. Prereq: Consent of instructor.

314 Coaching of Gymnastics (1) Fundamentals used in the coaching and judging of competitive men's and women's gymnastics. Emphasis on the safety and spotting of competitive gymnastics skills. Prereq: Consent of instructor.

315 Coaching of Baseball/Sofball (1) Theoretical and practical application of various coaching techniques in baseball/softball for the secondary/college coach. Topics include analysis and selection of appropriate game plans, specific conditioning and training techniques, coach/parent relations, competition planning, practice organization, player evaluation, scouting, individual and team offensive and defensive strategies. Prereq: Consent of instructor.
300 Wellness Through Health, Leisure, and Physical Activity (3) (Same as Health 330.)


350 Sport Management: Theory to Practice (3) An overview of the managerial theories and applications including responsibility and practices associated within the broad perspective of the sport enterprise. Prereq: Progression to Sport Management Major. (Admission to Sport Management Major: Sport Management 250 & 250, or consent of instructor. (Same as Sport Management 350).) Sp

356 Motor Development (3) Evolution of human motor behavior within the context of structural/functional changes, and with the respect to psychological, sociological, and medical factors related to and affecting motor performance/learning; analysis of changes in motor performance and underlying attributes across the lifespan with emphasis upon critical developmental periods. Prereq: Progression to major or consent of instructor.

372 Philosophy of Sport and Physical Education (3) Theories of reality and values as they apply to sport with emphasis on ethical issues. Prereq: Progression to major or consent of instructor.

380 Special Topics (1-3) Study in selected disciplinary or professional areas of Physical Education. May be repeated. Prereq: Progression to the major.

391 Psychology of Coaching (2) Major topics and theories dealing with social psychological issues affecting and relating to the coach/athlete relationship, with practical implications and applications to teaching and coaching. Prereq: Progression to major or consent of instructor.

405 Sociology of Sport (3) Social meaning, organization and process of sport. Difference between sport and play and games. Gender and sport participation and sport as an occupation. Prereq: Department approval. E

410 Pre-Internship Seminar (1) Objectives and policies of the internship program. Must be completed the term immediately preceding the internship. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp, Su

411 Adapted Physical Education (3) Developmental disabilities, other physical/mental handicaps and vari/ant/invariant characteristics of specific syndromes, geriatrics and physical limitation: measurement and programming as related to special education needs.

412 Practicum in Adapted Physical Education (1) Teaching those with special education needs. Observation and assistance to physical education teachers who teach in schools for the handicapped and/or in which many handicapped individuals are mainstreamed. Prereq: Progression to the major. Coreq: 411.

413 Special Practicum in Adapted Physical Education (2) Two sections, one on-campus lab program with one-on-one with a 2.5-3 year-old who is high educational risk and a section with experiences relevant to student needs with a physical education teacher; physical or occupational therapist, at a school for the handicapped. May be repeated. Maximum 3 hours.

414 Physical Testing and Exercise Prescription (3) Relationship of exercise to cardiorespiratory function, body composition, strength and flexibility. Measurement and evaluation of fitness in normal populations. (Same as Health 414.)

416 Athletic Coaching Field Experience (1) Practical experience in coaching and related responsibilities. May be repeated. Maximum 2 hours. Prereq: Approval of instructor.


422 Applied Kinesiology (3) Study and emphasis of human movement with emphasis on biomechanical principles and their application to movement and neuromuscular fitness. Prereq: 332.

423 Readings in Physical Education (2) Current and classic literature in physical education.

425 Administration and Evaluation In Physical Activity and Sport (3) Fundamental principles of organization, administration, and evaluation in the areas of physical activity and sport. Prereq: Admission to Teacher Education Program. Coreq: 450 for teacher education students.

426 Exercise Science Practicum I (1-6) Supervised experiences in exercise/fitness areas. May be repeated for a maximum of 10 hours. Satisfactory/No Credit grading only. Prereq: 332, 432, 445, 445, 446, 446.

456 Movement Education (2) Educational games, sports, dance, and gymnastics for children. Prereq: 356, 356, 435, and admission to Teacher Education Program.

466 Motor Development Laboratory (3) Application of selected perceptual-motor development theories, and pedagogical concepts to performance assessments and motor learning, and application to normally developing preschool primary grade children. Participation in intra- or inter-disciplinary research projects. Prereq: Progression to major or consent of instructor.

467 Physiology of Exercise (3) Lecture and lab class dealing with functions of the body in muscular work. Topics include physiological aspects of fatigue, training and adaptation to environment. Prereq: Zoology 230 or 440, 2 lectures and 1 lab. (Same as Zoology 480.)

468 Internship I: Grades K-12 (3-6) Methods and theories of teaching. Internship is completed in local public schools. Application for internship should be made upon admission to Teacher Education Program. Prereq: 410 and admission to Teacher Education Program. Satisfactory/No Credit only. F

482 Internship II: Grades K-12 (3-5) Demonstration of professional competence in planning, instruction, and classroom management. Internship is completed in local public schools. Prereq: 481 and admission to Teacher Education Program. Satisfactory/No Credit only. Sp

490 Exercise Physiology/Fitness Internship (1-15) Full-time practice in exercise/fitness at approved agency. Satisfactory/No Credit grading only. Prereq: 442, 442, 480 and consent of instructor.

493 Directed Independent Studies (1-3) Independent study in a specialized area with physical education. May be repeated. Maximum 9 hours. Prereq: Consent of advisor and progression to the major. Satisfactory/No Credit or letter grade.

HUMAN RESOURCE DEVELOPMENT (529)

161 Graphic Communications (3) Drafting as a means of communication in technology. Orthographic and multiview drawing, construction techniques and applications, sheet metal development and auxiliary view drawing. Sketching, dimensioning, board work, and CAD. F

163 Power and Energy Systems (3) Automotive technology, navigation, and computer technology. Application of engineering principles and engineering applications. F

165 Woods Technology (3) Processes, equipment, materials and products of wood working industry. Processes in machine, foundry, forging, heat treatment, sheet metal and fabrication. F

166 Metals Technology (3) Processes, equipment, materials and products of metal working industry. Processes in machine, foundry, forging, heat treatment, sheet metal and fabrication. F

201 Field Experience in Vocational Technical Education (1) Field experience in public school programs in distributive education. May be repeated. Maximum 3 hours. Satisfactory/No Credit only. E

230 Typewriting and Shorthand Proficiency (3) Proficiency for students planning to certify in business education and office technology who have typewriting and/ or shorthand courses. Prereq: Department approval.

261 Architectural Graphics (3) Graphic representation and architecture. Principles of construction, drawing, and design for a residential dwelling. CAD techniques. Prereq: 161 or consent of instructor. Sp

262 Basic Electricity/Electronics (3) Operation and characteristics of electrical systems and devices; includes general DC/AC theory and application, use of electronic measuring instruments, introduction to semi-conductors and various laboratory experiences that involve the function of different types of electronic circuits. Prereq: 163 or consent of instructor. Sp

265 Construction Technology (3) Residential construction, including site selection, foundations, framing, roofing, interior, and exterior finishes. Prereq: 165 or consent of instructor. Sp

266 Machine Tool Processes (3) Function, care, setup, operation and theory of basic machine tools. Prereq: 165 or consent of instructor. Sp

336 Micro Business Applications (3) Operating and programming microcomputers. BASIC language is used and programming examples are oriented in business applications. Prereq: Admission to Teacher Education Program. F

350 Related and Applied Theory in Occupations (1-15) Students must show evidence of bona fide occupational experience compatible with State Plan requirements. Written theory tests and the submission of a comprehensive portfolio are used to award variable credit. Measures are calculated by technical specialist and departmental faculty. May be repeated. Minimum 15 hours. Satisfactory/No Credit only. Prereq: Junior standing and departmental approval. E

351 Manipulative Skills in Occupations (1-15) Students must show evidence of bona fide occupational experience compatible with State Plan requirements. Written theory tests and the submission of a comprehensive portfolio are used to award variable credit. Measures are calculated by technical specialist and departmental faculty. May be repeated. Minimum 15 hours. Satisfactory/No Credit only. Prereq: Junior standing and departmental approval. E

352 Practicum in Industrial Education (1-15) Upgrading and upgrading experiences in non-traditional settings for students. May be repeated. Maximum of 6 hours. Satisfactory/No Credit only. E

354 Job Analysis Techniques and Curriculum Development (3) Instructional materials development utilizing the techniques of job analysis. F

355 Microcomputer Applications in Technology (3) Use and applications of microcomputers for education,
422 Adult Development and Training (3) Application, and evaluation of a successful cooperative education with approval form filed in the office of the department.

414 Individual Study in Technological and Adult Education (1-15) Topics to be assigned. May be repeated for credit to a maximum of 12 hours. Letter grade or S/NC grading. May be repeated. Maximum 9 hours.

380 Human Services Methodologies I (3) Basic helping skills essential to the effective delivery of Human Services. Prereq: Progression to the major or consent of instructor.

390 Information Interpretation and Assessment (3) Information gathering and assessment for human services are examined in depth in relation to human services practice. Formulating questions, identifying relevant data, using related resources, interpreting information and applying this information in a practical setting. Prereq: Progression to the major.

420 Human Services Methodologies II (3) Includes most contemporary social work, family systems, client-centered and rational emotive therapy. Discussion and role playing of methods and skills that will be used during the field experience. Prereq: Progression to the major, 220, 225. Coreq: 421.

430 Working Within the System (3) Capstone Experience. Context within which the need for human services arises and analysis of the process through which social services are provided. Prereq: Progression to the major, 320, 330. Prereq: Consent of instructor. Coreq: 420. Satisfactory/No Credit only.

441 Human Services Field Work II (3) Practical field experiences in appropriately organized and directed human services settings. Develops specific helping skills; involvement in roles and function of social services; and provides direct services in a supervised learning situation. For majors only. Prereq: Progression to the major or consent of instructor. Coreq: 420. Satisfactory/No Credit only.

450 Special Topics in Human Services (3) Issues, methods, values, and trends with implications for helping practitioners, such as art therapy, legal and ethical issues, and self-awareness education. May be repeated. Maximum 9 hours.

451 Foreign Study (1-15)

452 Off-Campus Study (1-15)

453 Independent Study (1-15)

INTERDISCIPLINARY PROGRAMS (270)

100 Selected Interdisciplinary Topics (1-15) May be repeated. Maximum credit 6 hours.

400 Selected Interdisciplinary Topics (1-12) Acceptable for major or minor credit in any Interdisciplinary Program. Prereq: Consent of the Director of Interdisciplinary Programs and the respective chairperson. May be repeated for credit to a maximum of 12 hours. Letter grade or S/NC grading.

401 Foreign Study (1-15) Registration by permission of director of Interdisciplinary Studies.

402 Off-Campus Study (1-15) Registration by permission of director of Interdisciplinary Studies.

INTERIOR DESIGN (582)

140 Introduction to Interior Design (2) Orientation to the profession; relationship to allied fields; contempl-
visual environments; role of movement in experiencing scale and volumetric space. One hour lecture and three hour studio. Open only to majors in interior design and architecture. Coreq: 140.

200 Human-Environment Systems (3) Role of culture in defining environment; physical, social, psychological and conceptual aspects of human-environment systems; impact of environment on human behavior; feelings and values; mutual-casual relations of environment and systems. (Same as Urban Studies 200.)

240 Fundamentals of Interior Design I (4) Principles of spatial organization; creative problem-solving and communication techniques for micro-interior environments; perspective drawing; model building; experimentation with black and white media. One hour lecture and three hour studio. Prereq: or Coreq: 140, 150, 280, Arch 172, Math 202.

250 Fundamentals of Interior Design II (4) Problem solving, spatial organization of micro environments, increasingly larger scale; communication of total design solution through visual and oral presentation techniques; emphasis on the use of color. One hour lecture and three hour studio. Prereq: 200.

260 Materials and Resources for Interiors (2) The development and application of materials and resources used in interior architectural space. Prereq: RCS 120.

280 Micro-Computers for Interior Design (3) Introduction to computer-based software, drafting, desktop publishing, database and other software applications in various aspects of project design and management, including cost estimating and budget constraints, optimizing design criteria, product identification and information and resource management. One hour lecture and two hour studio. Prereq: or Coreq: 240. Interior Design majors only.

310 Survey of Interior Design (3) Planning and organizing interior areas (rooms, apartments, residences) to meet personal and family housing needs; relation of furnishings to architectural space. Not open to Interior Design majors. Enrollment preference given to Home Economics Education and Hotel Restaurant Administration majors.

315 Hospitality Interiors (3) Planning and organizing interior spaces for restaurants and lodging facilities; relation of furnishings to architectural space. Open only to Hospitality Design majors.

320 Intermediate Interior Design I (5) Studio problems of intermediate complexity with emphasis on programming and schematic design phases; in-depth analysis of current programming methods; integrates and extends previous knowledge of design and planning of micro and macro environments. Two hour lecture and three hour studio. Coreq: Third year standing in Interior Design.

350 Intermediate Interior Design II (5) Studio problems of intermediate complexity; integrates and extends previous knowledge of working drawings, materials and sources, design methods, spatial organization and planning of micro and macro environments. Two hour lecture and three hour studio. Prereq: or Coreq: 280, 340, 460, Physics 122.


370 History of Interior Architecture (4) Interior architecture, decoration and decorative arts within cultural context, ancient through nineteenth centuries, emphasizing trends and styles. American Art History 172 and 173 or consent of instructor.

400 Proxemics (3) Analysis of space and behavior; within a cultural context. Application to design and the design process. Examination of theoretical foundations and concepts and applications to interior. Use of visual techniques and methods for investigating behavioral design requirements. Prereq: 200, 280, 440, or consent of instructor.

417 Honors: Interior Design (1-4) Advanced research in interior design problems for juniors or seniors. May be repeated. Maximum 8 hours. Consent of Interior Design faculty.


440 Advanced Interior Design I (6) Non-residential studio problems of advanced complexity; integrates and extends previous experiences utilizing systematic design methodology. Two hour lecture and three hour studio. Prereq.: 350; Coreq.: 400, or consent of instructor.

450 Advanced Interior Design II (5) Comprehensive studio problems of advanced complexity; integrates and extends previous experiences utilizing systematic design methodology. Two hour lecture and three hour studio. Prereq: 440 or consent of instructor.

460 Lighting for Interior Designers (3) Application of elements and principles of lighting and wiring to design of visual environment. Prereq: or Coreq: 350, Physics 122 or consent of instructor.

470 History of the Contemporary Interior Architecture (4) Interior architecture, furniture, design philosophies, nineteenth century roots for twentieth century developments, Europe and America. Design influenced by movements in the fine arts, technological advances, cultural context. Prereq: ID 370 or consent of instructor.

475 History of American Interior Architecture (3) Historical developments in interior architecture and decorative arts within cultural context, colonial era through nineteenth century. Prereq: 370 or consent of instructor.

480 Furniture Design (4) Human factors data applied to design of body support, task support, storage and systems, construction drawings and scale models; advanced millwork design; materials and manufacturing processes. One hour lecture and two hour studio. Coreq: Fourth year standing in Interior Design program or consent of instructor.

485 Interior Design Synthesis (5) Advanced integrative design/research experience. Prereq: 450 or consent of instructor.

491 International Study (1-15) Individual or group study abroad; academic research, field investigation, or study abroad. May be substituted for 420 in student's professional curriculum. Determination of credit based on particular international experience. Prereq: Consent of instructor.

493 Directed Studies in Interior Design (1-4) Student or staff initiated research or studio investigation of special topic. Elective credit only. May be repeated. Maximum 8 hours. Prereq: Consent of instructor.

ITALIAN (584)

111-112 Elementary Italian (3,3) Introduction to Italian. Must be taken in sequence. Language Laboratory required. F, Sp

199 Italian Language and World Business (2) This course will examine the importance of foreign trade at the local, state, and national levels. An interdisciplinary team will explore the economy of the Italian Republic. Arts will provide an overview of the value of study language and international cultural awareness in world business. Restricted to students majoring in Language and World Business. See the Director for further information. F

211-212 Intermediate Italian (3,3) Sequence stresses reading, writing, listening and speaking Italian to prepare for upper division courses in the language. Must be taken in sequence. Language Laboratory required. F, Sp

311-312 History of Italian Literature (3,3) Chronological view of Italian Literature in relation to the specific historical developments that have influenced it. Prereq: 212 or equivalent.

314 Highlights of Italian Civilization (3) Survey of Italian civilization with special attention to major social, political and cultural achievements. Prereq: 212 or consent of instructor.

341-342 Intermediate Grammar, Composition and Conversation (3,3) Grammatical analysis of Italian prose; review of grammatical principles and their application in translation from English to Italian, both written and oral. Exercises in free composition. Prereq: 212 or equivalent.

401 Dante and Medieval Culture (3) Introduction to the significance of this great Italian writer. Prereq: 212 or consent of instructor. (Same as Medieval Studies 401.)

402 Petrarch and Boccaccio (3) Prereq: 212 or consent of instructor. (Same as Medieval Studies 402.)

403-404 Literature of the Rinzascimento (3,3) From Puccio to Tasso, the Quattrocento and the Cinquecento. Prereq: 212 or consent of instructor.

405 Modern Italian Poetry (3) Prereq: 212 or consent of instructor.

406 The Modern Italian Novel (3) Prereq: 212 or consent of instructor.

409 Directed Readings (3)

410 Italian Theatre (3) Survey of Italian theatre from Renaissance to present. Prereq: 212 or consent of instructor.

421 Topics in Italian Literature and Cinema (3) Examination of Italian literature and cinema from 1930 to the present focusing on literary works translated into English and adapted into film. Objectives of the course are to better understand the role of cinema and theatre, and to achieve a greater understanding of Italian culture since 1930. Films will be shown in Italian with English subtitles. May be repeated. Maximum of 6 hours. (Same as Cinema Studies 421.)

490 Internship (1-15) Career-related experiences in the United States or abroad with permission of the Language & World Business Director. For Language & World Business majors only. Satisfactory/No Credit only.

491 Foreign Study (1-15)


492 Field Experience (1-2) Approved internships and other supervised practice in journalism and public relations. May be repeated for a maximum of 4 credit hours. Prereq: Senior standing and consent of instructor.

493 Independent Study (3) May be repeated for a maximum of 6 hours. Prereq: Consent of instructor.

LATIN

111-112 Beginning Latin (3,3) Must be taken in sequence. Not available to students eligible for Latin 150.

150 Latin Transition (3) This course is designed to prepare students for enrollment in Latin 251. Prereq: Two years of high school Latin and a score on the Latin placement exam below that required for admission to Latin 251.

251 Intermediate Latin: Grammar Review and Readings (3) Prereq: 112 or 150 or placement through the Latin placement examination.

252 Intermediate Latin: Vergil's Aeneid (3) Prereq: 251 or equivalent.

351 Cicero and Sallust (3) Prereq: 252 or equivalent.

352 Roman Lyric Poetry (3) Poetry of Catullus, Horace, and the elegists. Prereq: 252 or equivalent.

414 Cicero and Techniques of Latin Prose Composition (3) For advanced students in Latin. Practice in prose composition, the writings of Cicero the model. Prereq: 351-352 or consent of instructor.

431-432 Selected Readings from Latin Literature (3,3) For advanced students in Latin, Oratory, historical writings, and poetry of ancient Rome, in the original Latin. May be repeated for credit. Maximum 9 hours. Prereq: 351-352 or consent of instructor.

435 Medieval Latin (3) Selected readings from the Latin prose and poetry of medieval Europe. Prereq: Consent of instructor.

LATIN-AMERICAN STUDIES (600)

251-252 Introduction to Latin American Studies (3,3) Sociology of Latin America, with special emphasis on dominant culture patterns, social changes, and impact of nationalism. 251-Pre-Colonial and Colonial periods through Independence era. 252-Latter 19th century and the modern period. Writing-emphasis course.

311 Aspects of Luso Brazilian Literature (3) (Same as Portuguese 311.)

313 Peoples and Cultures of Mesoamerica (3) (Same as Anthropology 313.)

319 Caribbean Cultures and Societies (3) Same as Anthropology 319 and African-American Studies 319.

330 Books and Related Materials for Children (3) Materials for children in leisure time or classroom activities; criteria for selecting books, magazines, recordings, films and related materials; storytelling and other devices for encouraging reading. Undergraduate credit only. E

336 Aspects of Spanish American Literature (3) (Same as Spanish 336.)

355 Latin American Government and Politics I (3) (Same as Political Science 355.)

360 History of Latin America (3) (Same as History 360.)

391 History of Latin America (3) (Same as History 391.)

372 Geography of Middle America (3) (Same as Geography 372.)

373 Geography of South America (3) (Same as Geography 373.)

401 Cultural Plurality and Institutional Changes in Latin America (3) Value systems, behavioral patterns, political parties, role of the military, the Church, educational institutions, dictatorship and nationalism. Prereq: 6 hours of Latin American Studies courses or consent of instructor. E

402 Latin American Studies Seminar (3) Topics in Latin American studies. Prereq: 300 or 400 level Latin American Studies courses or consent of instructor.

431 Directed Readings in Brazilian and Portuguese Literature (3) (Same as Portuguese 431.)

432 Directed Readings in Brazilian and Portuguese Literature (3) (Same as Portuguese 432.)
411 Linguistic Anthropology (3) (Same as Anthropology 411.)

420 The Development of Historical Linguistics as a Science (3) Development of the scientific understanding of language change. Emergence of the Neogrammarian paradigm from 19th century intellectual trends. Impact of synchronic, descriptive, structural and transformational-generative linguistics on contemporary diachronic theory. Prereq: 6 hours of courses required for Linguistics concentration or consent of instructor.

425 Introduction to Descriptive Linguistics (3) (Same as French 425, German 425, Russian 425, and Spanish 425.)

426 Methods of Historical Linguistics (3) (Same as French 426, German 428, Russian 426, and Spanish 426.)

429 Romance Linguistics (3) (Same as French 429 and Spanish 429.)


435 Structure of the German Language (3) (Same as German 435.)

436 History of the German Language (3) (Same as German 436.)

471 Sociolinguistics (3) (Same as English 471 and Sociology 471.)

472 American English (3) (Same as English 472.)

474 Teaching English as a Second or Foreign Language I (3) (Same as English 474.)

475 Teaching English as a Second or Foreign Language II (3) (Same as English 475.)

485 Special Topics in Language (3) (Same as English 485.)

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

LOGISTICS AND TRANSPORTATION (624)

301 Introduction to Logistics (3) Business logistics as a functional area within the firm and as a strategic element of the marketing mix. Roles of materials management and physical distribution, and activities such as customer service, order processing and information flow, transportation, warehousing, purchasing, inventory, and system design and organization.

302 Introduction to Transportation (3) Transportation and distribution as a vital part of the nation's economic and social structure. U.S. transportation system: society's demands for mobility and policies of public and private sectors to meet those demands. Prereq: Economics 201.

400 Special Topic in Logistics and Transportation (3) Seminar in current problem area in logistics and transportation. Topic announced prior to offering. May be repeated once for additional credit provided topic is different. Maximum 6 hours. Prereq: Consent of instructor.

401 Materials and Traffic Management (3) Planning and management of logistics activities including purchasing, transportation, storage and control, and supply strategies. Materials management tools and organizational structures for various industries. Prereq: 301-302.

402 Transportation Operations and Cost Management (3) Focuses on freight costs and their control as affected by each mode individually and in coordination with each other. Prereq: 301-302.


450 Computer Information Systems Analysis and Design (3) Design of operational/logistical information systems for organizations based on evolving microcomputer hardware networks, data base design theory, procedural and standard language systems. Analysis of both operational and decision support requirements. Prereq: Management 303.

461 Seminar in Logistics Strategy (3) Senior seminar in development of strategy in logistics management. Major writing requirement. Prereq: 301-302 and senior standing.

462 Seminar in Transportation Strategy (3) Senior seminar in development of strategy in transportation management. Major writing requirement. Prereq: 301-302 and senior standing.

493 Independent Study (1-6) Directed research on subject of mutual interest to student and staff member. May be repeated. Maximum 6 credit hours. Prereq: Consent of instructor.

487 Honors: Executive-in-Residence in Transportation and Logistics (3) Student interaction with top-level logistics and transportation executives. Focus on the strategic decision-making process. Prereq: Consent of instructor.

MANAGEMENT (625)


303 Management Information Systems (3) Management information systems needs, management decisions relating to technology and systems design. Data base management systems and applications development software. Prereq: Computer Science 102.


321 Organizational Structure and Behavior (3) Behavioral processes in organizations; motivation, leadership, decision making, communication; behavioral consequences; group behavior, informal organizations, organizational structure, conflict, politics, change and development. Prereq: 301.


401 Business Strategy/Policy (3) Strategy and policy affecting the success of the business enterprise.Capture course which integrates all functional areas in the formulation and implementation of strategy which will enable the organization to reach objectives. Major writing requirement. Prereq: Completion of business core courses and senior standing. Must be approved by the instructor. Prereq: 301.


431 Personnel Management (3) Theory, methods and issues pertaining to personnel management. Application of strategic planning and management skills. Prereq: 301, senior standing.

432 Implementation and Evaluation of Personnel Programs (3) Methods of identifying, developing, implementing and evaluating personnel programs. Prereq: 431, senior standing.

440 Organizational Psychology (3) (Same as Psychology 440.)

441 Operations Management II (3) Planning and control of operations systems. Aggregate planning; scheduling systems, materials management. Prereq: 341.

471 International Management (3) Factor significant to the manager in international business activities. Prereq: 301.

493 Independent Study (3) Readings, research, and special projects. Prereq: Consent of instructor. May be repeated one time for credit.

MATHMATICS (641)

101 Intermediate Algebra (3) First degree equations and inequalities, polynomials, rational expressions, exponents, graphing, second degree equations and inequalities, systems of equations, introduction to exponential, logarithmic functions. The course is designed to prepare students for enrollment in Mathematics 110, 115, 119, 130, 201, and 202. Course does not count towards the total college credit required for graduation, nor does it fulfill any mathematics requirement.

110 Algebraic Reasoning (3) A course in the applications of elementary mathematics to life in the modern world. Includes applications in financial mathematics, consumer mathematics, and other areas. Students preparing to take 121 should take 110 instead of 110. Prereq: Two years of algebra and one year of geometry in high school and either satisfactory placement test scores or Math 100. This course should not be taken to remove an entrance requirement.

115 Statistical Reasoning (3) An introduction to probability and statistics without calculus. Not available for credit to students in the College of Business Administration. Prereq: Two years of algebra and one year of geometry and either satisfactory placement test scores or Math 100.

119 College Algebra (3) A review of algebraic functions, equations, and inequalities for students who satisfy the course prerequisites for 121 but whose placement test scores indicated additional preparation is necessary. Students who receive a grade of C or better in any course numbered 121 or higher may not subsequently receive credit for 119. Prereq: Two years of algebra and one year of geometry and either satisfactory placement test scores or Math 100. This course should not be taken to remove an entrance requirement.
121 Calculus A (3) For students not planning to major in the physical sciences, engineering, mathematics, or computer science. Calculus of algebraic, exponential, and logarithmic functions, with applications. No student who has received credit for Math 141 or 151 with a grade of C or better may subsequently receive credit for 121. Prereq: Two years of algebra and one year of geometry in high school, plus satisfactory placement test scores or 110 or 130.

122 Calculus B (3) Sequel to 121, including elementary matrix algebra, multivariable calculus, and optimization. No student who has received credit for 142 or 152 may subsequently receive credit for 122. Prereq: 121, or 141, or 151.

130 Precalculus I (4) Review of algebraic, logarithmic, exponential, and trigonometric functions for students who satisfy the course prerequisites for 141 or 151, but whose placement test indicate additional preparation is necessary. Students who have a grade of C or better in 141 or 151 may not subsequently receive credit for 130. Prereq: Two years of algebra, a year of geometry, and half a year of trigonometry in high school. Students who did not study trigonometry in high school may take the noncredit course in trigonometry simultaneously with 130.

141-142 Calculus I, II (4, 4) Standard first-year course in single variable calculus, especially for students of science, engineering, mathematics, and computer science. Differential and integral calculus with applications. Prereq: Two years of algebra, a year of geometry, and half a year of trigonometry in high school, plus satisfactory placement test scores, or Math 130.

143-144 Microcomputer Laboratory (1, 1) Optional supplement to calculus courses, featuring computer demonstrations and projects. Coreq: Students registering for 143 must also be registered for 141 or 147; students registering for 144 must also be registered for 145 or 146.

147-148 Honors: Calculus I, II (4, 4) Honors version of 141-142 for well-prepared students. Qualified students are usually invited to enroll, but inquiries from other students having excellent high school mathematics background are welcome. Credit will not be given for 147 and 141 or 145.

151-152 Biocalculus I, II (3, 3) For students majoring in the life sciences. Topics from calculus of algebraic, logarithmic, and exponential functions, probability and statistics, with emphasis on applications to the life sciences. Prereq: Two years of algebra, a year of geometry, and half a year of trigonometry in high school, plus satisfactory placement test scores, or 130.

200 Matrix Computations (1) Introduction to matrix calculations, including determinants, eigenvalues and eigenvectors. For students in the College of Engineering and College of Business Statistics majors only. Students who have received credit for Math 142 or better in 151 may not subsequently receive credit for 200. Prereq: 142 or 148.

201 Structure of the Number System (3) Problem solving, sets and relations, number systems, integers, elementary number theory, rational numbers and decimals. Prereq: Two years of algebra and one year of geometry in high school and satisfactory placement test score.

202 Probability, Statistics, and Euclidean Geometry (3) Probabilities in simple experiments, measures of central tendency and variation, Basic plane and three-space geometry, congruence and similarity, constructions with compass and straightedge, transformations, areas and volume measurement. Turtle graphics. Prereq: Two years of algebra and one year of geometry in high school and satisfactory placement test score.

221-222 Discrete Mathematics I, II (3, 3) Logic, sets, combinatorics and probability, functions and relations, induction and recursion, elementary number theory. Prereq: 141 or 151.

231 Differential Equations I (3) First course, emphasizing solution techniques. Includes first-order equations and applications, theory of linear equations, equations with constant coefficients, Laplace transforms, and series solutions. Prereq: 142 or 149.

241 Calculus III (4) Calculus of functions in two or more dimensions. Includes solid analytic geometry, partial differentiation, multiple integration, and selected topics in vector calculus. Prereq: 142 or 148.

243 Microcomputer Laboratory (1) Optional supplement to 241, featuring computer demonstrations and projects. Coreq: 241 or 247.

247 Honors: Calculus III (4) Prereq: 147-148 or invitation of the department.

251 Matrix Algebra I (3) First course in the algebra of matrices, dealing with vector spaces, linear transformations, eigenvalues and eigenvectors. Prereq: 141-142.

253 Microcomputer Laboratory (1) Optional supplement to 251, featuring computer demonstrations and projects. Coreq: 251 or 257.

257 Honors: Matrix Algebra I (3) Prereq: 148 or invitation of the department.

323 Probability and Statistics (2) Discrete and continuous random variables; conditional probability, expectation, moment generating functions; law of large numbers, central limit theorem. Elements of statistical inference, estimation, and hypothesis testing. Prereq: 221, 241.

341 Analysis I (3) Introduction to the theory of the real number system, limits of sequences, and functions of a real variable. Prereq: 241 or 247, and 221.

371 Numerical Algorithms I (3) Selection of algorithms and associated software for problems selected from the theory of equations, linear and non-linear equations, least squares data fitting, interpolation, numerical integration, numerical methods for ordinary differential equations. Prereq: 231, 241, or 247, and 251 or 257, and knowledge of a high level programming language such as FORTRAN. (Same as Computer Science 371)

399 Studies in Mathematics (3) May be repeated. Maximum 9 hours. Prereq: Consent of instructor.

400 History of Mathematics (3) Development of major ideas in mathematics from ancient to modern times and the people behind these ideas. Includes contributions from geometry, philosophy, art, and other areas. Prereq: 141-142 or equivalent. Writing emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

410 Mathematics and Microcomputers (1) Primarily for students seeking certification as mathematics teachers at the secondary level. The use of microcomputers to teach and learn mathematics. Does not satisfy major requirements for a B.S. or M.S. in mathematics. Prereq: 141 or 147.

420 Applied Vector Calculus (3) Topics from multivariable and vector calculus including line and surface integrals, Green’s, Stokes and the theorems of Gauss and Stokes. Prereq: 241 or 247.

425 Statistics (3) Derivation of standard statistical distributions, conditional probability and expectations, methods of moment generating/characteristic functions. Prereq: 323 or equivalent. Writing emphasis course:

426 Probability II (3) Elements of stochastic processes: random walk, Markov chains and Poisson probability. Other topics as selected by the instructor. Prereq: 423.

427 Statistics (3) Derivation of standard statistical distributions including t, F and X²; independence of sample mean and variance; basic limit theorems; point and interval estimation. Bayesian estimation; statistical hypotheses, Neyman-Pearson theorem; likelihood ratio and other parametric and non-parametric tests; sufficient statistics. Prereq: 323 or consent of instructor.


443 Complex Variables I (3) Introduction to the theory of functions of a complex variable, including residue theory and contour integrals. Prereq: 241 or 247.

444 Complex Variables II (3) Applications of complex variables to steady-state temperatures, electrodynamics, and fluid flow. Prereq: 443.

445-446 Advanced Calculus I, II (3, 3) Introduction to the sequence of series, series, differentiation, and Riemann integration of functions of one or more variables. Prereq: 341 or consent of instructor.

447-448 Honors: Advanced Calculus I, II (3, 3) Honors version of 445-446. Prereq: 341 or consent of instructor.

451 Topics in Algebra (3) Topics chosen from number theory and the theory of polynomial equations, such as the quadratic reciprocity expansion, and Sturm separation. Prereq: 351 or consent of instructor.

453 Matrix Algebra II (3) Advanced topics in linear algebra, including the Jordan canonical form. Prereq: 251 or 257.

455-456 Abstract Algebra I, II (3, 3) Introduction to algebraic structures such as groups, rings, fields, vector spaces and linear transformations. Prereq: 351 or consent of instructor.

457-458 Honors: Abstract Algebra I, II (3, 3) Honors version of 455-456. Prereq: 351 or consent of instructor.

460 Geometry (3) Axiomatic and historical development of Euclidean, and hyperbolic geometry stressing proof technique and critical reasoning. Models of Non-Euclidean geometry. Coreq: 142 or 146, and 221, or consent of instructor.

461 Topology (3) Includes topology of line and plane, separation properties, compactness, connectedness, continuous functions, homeomorphisms, continua, and topological invariants. Prereq: 341 or consent of instructor.

471 Numerical Analysis (3) Introduction to computation, instability, and rounding. Interpolation and approximation by polynomials, least squares and the algebraic eigenvalue problem. Prereq: 217 or consent of instructor. (Same as Computer Science 471.)

472 Numerical Analysis (3) Direct and iterative methods for systems of linear equations. Solution of a single nonlinear equation and nonlinear systems. Orthogonal decompositions, least squares and the algebraic eigenvalue problem. Prereq: 371 or consent of instructor. Recommended: 453. (Same as Computer Science 472.)

490 Readings in Mathematics (1-3) Open to superior students with consent of department head. Independent study with faculty guidance. May be repeated. Maximum 6 hours. Prereq: Agreement of faculty mentor to supervise independent work.

499 Seminar in Mathematics (1-3) Topics will vary. Will require out-of-class projects and in-class presentations by students. Students may be registered for a number of credit hours announced for a particular seminar. May be repeated. Maximum 9 hours. Prereq: Consent of instructor.

MEDICAL BIOLOGY (661)

410 Laboratory Safety Education (2) Preparation for laboratory safety courses. Attention will be paid to the proper use of laboratory equipment and safety techniques. Use of dangerous chemicals, isotopes, poisons, and equipment will be discussed. Techniques of safe operation and handling will be presented.

411 Undergraduate Research Participation (1-3) Experiential learning in active biomedical research projects under supervision of faculty. Students in pre-medical and
310 Advanced Military Studies I (4) Discussion and practical exercise of leadership including operation of the military team, land navigation, small unit patrolling, and physical fitness. Tactical and administrative roles in the military are developed in the classroom and applied during leadership training. Prereq: U.S. citizen; minimum of 55 credit hours passed and have at least two years remaining to complete degree (undergraduate or graduate), physically qualified; cumulative GPA 2.60 or higher; legally qualified; or 3 or 4 years of JROTC (110, 120, 210, 220 completion or 200 completion or basic training completion. Letter grade only. F, Sp

320 Advance Military Studies II (4) Preparation of the future officer leadership of Army to excel at MS 400 Advanced Camp Practicum. Instruction builds on lessons-learned in the 510 and refines small unit leadership skills, map reading, techniques, oral and written communication skills, and physical fitness. Includes three field exercises and a leadership laboratory. Prereq: 310. Letter grade only. 3 hours and 1 hour lab. Sp

400 Advanced Camp—Practicum (4) Contact hours of instruction and evaluation of leadership skills, group dynamics, communication skills, decision-making skills during the summer between the Junior and Senior year. Prereq: 310 or 320. Letter grade only. Sp

410 Command and Staff Functions (4) Command and staff duties and relationships including logistics, personnel systems, efficiency reports, correspondence, training management, briefings, counseling, strategic threat positioning, and related officer functions. Prereq: 310 and 320, 400 or consent of instructor. Letter grade only. 3 hours and 1 hour lab. F

420 Military Ethics and Law (4) Military profession, ethical reasoning, staффs duties, military briefings and leadership, military justice system, individual leadership, Law of War Warfare. Prereq: 310, 320, and 400, 410 or consent of instructor. Letter grade only. 3 hours and 1 hour lab.

430 U.S. Military History, 1754 to the Present (3) Same as History 451.

MUSIC EDUCATION (707)

200 Choral Laboratory (1) A laboratory choir designed to afford conducting opportunities for student conductors and to acquaint students with a variety of choral literature. May be repeated. Can be taken as elective credit by any student registered for MUSIC 200. This class cannot be used to meet any ensemble requirements unless permission is granted by the Director of Choral Activities, the student’s advisor, and the Department of Music.

210 Class Woodwind Methods (2) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. May be repeated. Maximum 4 hours. Letter grade only. F

220 Class Brass Methods (2) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. Letter grade only. Sp

230 Class Percussion Methods (2) Structure, use, techniques of playing; care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. Letter grade only. F, Sp

240 Class String Methods (2) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. Letter grade only. F, S

250 Functional Piano for Teachers (1) Practical piano skills for the elementary music teacher who does not have a keyboard instrument as the applied principal. Transposition, instrumentation, reading open vocal scores, simple accompaniments. May be repeated once for credit. F, Sp
MUSIC HISTORY (709)
200 Introduction to Music Literature (3) Basic forms of music and accepted masterworks through chronological approach. For music majors and minors only.
210-220 History of Music I, II (3,3) 210 to 1750. 220-225 to present. Prereq: 200. Must be taken in sequence.
310 Introduction to African-American Music (3) History of African music, gospel music, and jazz with emphasis on Black artists and their contributions. (Same as American Studies 310.)
330 Women in Music (3) History of women in music from the Middle Ages to present as composers, performers, educators, and patrons. (Same as Women's Studies 330.)
350 History of Jazz (3) Origin, development, and styles of jazz music and its exponents. Cultivation of special listening techniques. (Same as African-American Studies 350.) Writing-emphasis course. 310-320.
390 World Music (3) Basic attitudes and techniques of ethnomusicology. Survey of music cultures throughout the world, with emphasis on the Pacific, Near East, Asia, and Europe.
400 Music History Survey (3) History of music with emphasis on periods, styles, changes, and cultural forces. Western European tradition from 400 to 1900. Recommended as a review course for graduate students. Prereq: Consent of instructor.
410 Music History Genre (3) Topics vary. May be repeated for credit. Maximum 6 hours.
420 History of Opera (3) Dramatic, vocal, and orchestral elements in operas of Italian, French, and German schools. 1600-present.
430 Symphonic Literature (3) Survey of literature for orchestra from Baroque to the present, with emphasis on the evolution of the symphony.
440 Music of North America (3) Folk and art music of the United States and Canada from colonial times to the present. Writing-emphasis course.
450 Composer Seminar (3) Life and works of a single composer. Subjects vary.
460 Music Aesthetics (3) Nature of music and musical experience, sense perception and emotions, music, and role of artist in society. Aesthetic viewpoint of individuals and historical eras through selected writings. Writing-emphasis course.
480 Music in Christian Worship (3) Hymnody, liturgies, and liturgical music.
490 Church Music Methods and Administration (3) 493 Independent Study (1-15) Prereq: Consent of department head. May be repeated for credit.

MUSIC INSTRUMENT (710)
310 Brass Literature and Pedagogy (3) Survey of brass solo and ensemble literature, including instructional materials and methods. Application of pedagogical procedures to individual instruction and performance; demonstration lessons by applied brass faculty and class members. Prereq: Consent of instructor.
320 Woodwind Literature and Pedagogy (3) Survey of woodwind solo and ensemble literature, including instructional materials and methods. Application of pedagogical procedures to individual instruction and performance; demonstration lessons by applied woodwind faculty and class members. Prereq: Consent of instructor.
330 Percussion Literature and Pedagogy (1) Survey of percussion solo and ensemble literature, including instructional materials and methods. Application of pedagogical procedures to individual instruction and performance; demonstration lessons by applied percussion faculty and class members. Prereq: Consent of instructor.
340-350 String Literature and Pedagogy I, II (3,3) 340 Survey of string techniques, issues, research and pedagogies; topical presentations by the applied string faculty and guests. 350 Development of the violin family of instruments and bows; survey of string literature, performances, and performance styles; application of historical, analytical, and pedagogical procedures to performance. Prereq: 340 and applied enrollment in strings at 300 level or above or consent of instructor.
490 Instrumental Conducting (3) Knowledge and skills in instrumental conducting; various periods and composers and relationship of different styles to the conductor's art; musical analysis and practice in conducting. Prereq: Music Education 320 or equivalent.

MUSIC JAZZ (711)
110 Jazz Theory (2) Fundamentals of the jazz language, including terminology, chord symbols, chord scales, and chord progressions, plus ear-training lab. Prereq: Music Theory 110.
120 Analysis of Jazz Styles (2) Individual improvisatory styles through analysis of their transcribed solos. Prereq: 110.
130-140 Jazz Piano I, II (1,1) Harmonic language of jazz. Interpretation of chord symbols, formulae for voicing chords, chord progressions, and fundamentals of melody-playing and improvisation for right hand. Must be taken in sequence.
150 Studio Guitar Styles (2) Introduction to guitar styles in jazz, rock, country, and blues idioms. Prereq: Consent of instructor.
160 Introduction to Styles in Jazz Drumming (2) Examination of major performers and composers who have contributed significantly to creation of principal styles of jazz drumming.
210-220 Jazz Improvisation I, II (2,2) Study and application of principles of improvisation, including nomenclature, chord progressions, chord scales, patterns, melodic development, and tune styles. Prereq: 110.
310 Jazz Composition and Arranging (2) Prereq: Consent of instructor.
320 Jazz Band Arranging (2) Arranging and scoring for the Big Jazz Band. Prereq: Consent of instructor.
410 Advanced Improvisation (3) Development of individual skills and solving individual problems in jazz improvisation. Prereq: 210 and 220.
420 Jazz Pedagogy (1) Methods and materials relating to teaching of jazz, designing and administering jazz programs, and techniques for use in jazz ensembles. Prereq: Studio Music and Jazz major or consent of instructor.

MUSIC KEYBOARD (712)
110-120 Class Piano I, II (1,1) Development of keyboard skills in reading, technique, repertoire, harmonization, and transposition. Must be taken in sequence.
210-220 Class Piano III, IV (1,1) Combination of 110-120; 220 completes piano competency requirement; must be taken in sequence.
230 Keyboard Harmony (1) Melody harmonization, figured bass realization, and improvisation. Prereq: Music Theory 110-120.
240 Church Service Playing I (1) Practical skills applicable to the use of the organ in church services, including improvisation, hymn playing, and accompanying. Prereq: 230 and organ proficiency at the 200 level.
310-320 Church Service Playing II, III, IV (1,1) Combination of 240. Prereq: 240.
330 Sight Reading at the Keyboard (1) Prereq: Consent of instructor.
440-450 Piano Pedagogy I, II (2,2) Pedagogical methods and materials related to the development of principles of learning; specific programs based on pupil aptitude and background; collaborative teaching experience. Must be taken in sequence. Prereq: Consent of instructor.
460-470 The Organ and Its Literature I, II (3,3) Development of the organ and organ literature from the Middle Ages to the present; problems of style and interpretation; pedagogical literature and methods; organ design. Prereq or Cons: Music History 320 and consent of instructor.
480 Teaching Class Piano (3) Historical survey and evaluation of teaching materials and methodology for college and/or adult beginning piano classes; collaborative teaching experience. Prereq: Consent of instructor.
485 Suzuki Piano Method I (2) Study of the psychology, procedures, and literature of the Suzuki piano method. Must be taken in sequence. Prereq: Consent of instructor.
490-491 Internship (2,2) Opportunity for pedagogy students to gain experience in teaching pre-college students under the supervision of experienced instructors.
495 Suzuki Piano Method II (2) Study of the psychology, procedures, and literature of the Suzuki Piano Method. Prereq: Consent of instructor.

MUSIC PERFORMANCE (713)
Admission by audition only. Prerequisite: Mus Gan 140 or equivalent.
103-203-303-403-503 Flute (1-4) May be repeated.
105-205-305-405-505 Oboe (1-4) May be repeated.
110-210-310-410-510 Bassoon (1-4) May be repeated.
115-215-315-415-515 Clarinet (1-4) May be repeated.
120-220-320-420-520 Saxophone (1-4) May be repeated.
125-225-325-425-525 Horn (1-4) May be repeated.
130-230-330-430-530 Trumpet (1-4) May be repeated.
135-235-335-435-535 Trombone (1-4) May be repeated.
140-240-340-440-540 Baritone (1-4) May be repeated.
145-245-345-445-545 Tubas (1-4) May be repeated.
150-250-350-450-550 Percussion (1-4) May be repeated.
155-255-355-455-555 Voice (1-4) May be repeated.
160-260-360-460-560 Violin (1-4) May be repeated.
165-265-365-465-565 Viola (1-4) May be repeated.
170-270-370-470-570 Cello (1-4) May be repeated.
175-275-375-475-575 String Bass (1-4) May be repeated.
176-276-376-476-576 Electric Bass (1-4) May be repeated.
179-279-379-479-579 Guitar (1-4) May be repeated.
180-280-380-480-580 Piano (1-4) May be repeated.
190-290-390-490-590 Organ (1-4) May be repeated.
195-295-395-495-595 Composition with Electronic Media (1-3) May be repeated. Prereq: Consent of instructor.
209-309-409-509 Composition (1-3) May be repeated. Prereq: Consent of instructor.
395-495-595 Composition with Electronic Media (1-3) May be repeated. Prereq: Consent of instructor.
496 Composition for Media (2) May be repeated. Prereq: Consent of instructor.
499 Improvisation (1-2) May be repeated. Prereq: Consent of instructor. Cannot be used to satisfy applied music requirement.

MUSIC THEORY (714)
110-120 Theory I, II (3,3) Materials of music including basic elements through triads and seventh chords and modulation. Exercises in writing and analysis of music with emphasis on common practice.

140 Ear Training II (1) Development of proficiency in identifying and notating complex melodic, harmonic and rhythmic models. Includes computer lab. Should be taken concurrently with 120. A, B, C, NC grading.

210-220 Theory III, IV (3,3) Materials of music with emphasis on literature of Classic, Romantic, and contemporary periods. Exercises in writing and analysis. Must be taken in sequence. Prereq: 120 or consent of instructor.

230 Fundamentals of Acting for Singers I (1) Development of acting techniques in the study of musical theatre. Prereq: Voice major or consent of instructor. Must be taken in sequence.


250 Composition (2) Writing short vocal and instrumental compositions using conventional and new forms of notation. Prereq: 220 or consent of instructor. May be repeated for credit. Maximum 4 hours.

290 Sound Recording Techniques (3) Theory and application of audio recording's sound reproduction and reinforcement systems. Topics include room acoustics, audio measurements, microphones, studio and real-time processing, noise reduction, mixing, editing, monitors, system wiring, and maintenance.

301 Form and Analysis (3) Study and practice in analysis of forms of music from smallest structural units to large compound forms. Prereq: 220.

320 Instrumentation (3) Basic techniques in scoring for voice, brass, woodwind and string choirs and orchestras. To be taken by jazz and music education majors.

340 Introduction to Computer Music Transcription (3) Exercise in notation, publishing and back-up of computer involved programming elements of word processing, graphic design, sequencing and page layout. Study of Music Instrument Digital Interface protocol as it applies to computer music analysis. Prereq: consent of instructor.

390 Sound Synthesis Techniques (3) Studio and real-time applications of synthesizers. Historical background, theoretical concepts, equipment interface and usage, analysis of sounds and compositions. Prereq: 290 or consent of instructor.

400 Survey of Music Theory (3) Emphasis on harmonic practice of Baroque, Classical, and Romantic periods. Exercises in writing are recommended as a review course for graduate students. Prereq: Consent of instructor.

410 Ear Training Review (1) Review and application of harmonic and melodic dictation skills for graduate and advanced undergraduate students. Prereq: Consent of instructor. Equivalent of required entering graduate students with a deficiency in ear-training.

420 Orchestration (3) Advanced techniques in instrumental writing with emphasis on scoring for the concert orchestra. To be taken by theory and composition majors.

430-440 Counterpoint I, II (3,3) 430-Species counterpoint in modal and tonal styles with emphasis on works of Palestrina and J.S. Bach. Prereq: 220. 440-Orchestration of contrapuntal music at the 18th and 19th centuries. Prereq: 430 or consent of instructor.

450 Choral Arranging (2) Analysis of scores and writing of arrangements for choirs. Prereq: 220 or consent of instructor.

483 Independent Study in Music Theory (1-15) May be repeated for credit. Prereq: Consent of department head.

MUSIC VOICE (715)

110 Class Voice II (1) Development of basic vocal skills. May be repeated for credit. Maximum 2 hours.

120 Class Voice I (1) Prereq: Consent of instructor. May be repeated for credit. Maximum 2 hours.

130-140 Fundamentals of Acting for Singers I, II (1,1) Development of basic techniques for dramatic presentation of music on stage. Introduction to history of opera and musical theatre. Prereq: Vocal major or consent of instructor. Must be taken in sequence.

210 Vocal Techniques in Popular Music (1) Development of performance techniques in Broadway and other contemporary musical styles. Prereq: Consent of instructor. May be repeated for credit. Maximum 4 hours.

315 Introduction to Vocal Repertory (3) Development of repertoire techniques. Prereq: Consent of instructor. May be repeated for credit. Maximum 4 hours.

320 Advanced Placement Credit: Care of the Adult Client (3) For registered nurses only. Satisfactory/No Credit only.

321 Advanced Placement Credit: Care of the Childbearing Client (3) For registered nurses only. Satisfactory/No Credit only.

322 Advanced Placement Credit: Care of the Child (2) For registered nurses only. Satisfactory/No Credit only.

323 Advanced Placement Credit: Care of Client with Mental Disorder (3) For registered nurses only. Satisfactory/No Credit only.

324 Nursing of Children and Adolescents (6) Content and clinical laboratory experience related to nursing care of healthy and acutely ill children and adults. Emphasis on application of physiological and behavioral concepts to the provision of comprehensive nursing care for hospitalized clients. 2 lectures, 4 lab. Prereq: 301, 302, 304, 305, 306; Prereq or Coreq: 316. Sp


401 Family Health Nursing (6) Nursing needs of families in family and in crisis situations. Preparation of family members by education of care to families in the childbearing and childrearing phases of family development. Application of theories of human development and growth to the family unit. Prereq: Consent of instructor. May be repeated for credit. Maximum 4 hours.

404 Nursing Management and Practice (3) Content related to nursing process as applied to patients with physical and behavioral deviations under therapy to associated with more complex and critical illnesses such as circulatory failure, cardiac dysrhythmias, neurological damage. Prereq: 301, 306, Sp

405 Professional Nursing Seminar (2) Critical examination of legislative, legal, ethical, social, and educational issues and trends that have immediate or long-range implications for professional nursing practice. Prereq: All 400 level clinical nursing courses. Sp

409 Nursing Management and Practice (3) Management and leadership principles and their application to client care. Course topics include quality assurance procedures; setting patient care delivery models, nursing practice standards, and evaluation of nursing practice; opportunities are provided for development.
ment of entry level nursing management role. 3 lec., 3 lab. Prereq: 12 credits of 400 level clinical nursing courses or consent of instructor. Sp

411 Psychosocial Long-Term Nursing (6) Nursing needs of clients whose health problems are of a developmental, behavioral, maternal, or long-term nature. Emphasis on prevention, wellness promotion, and rehabilitation. Nursing laboratory/critical care experiences with a psychiatric and chronic illness emphasis in a variety of acute, extended care, and rehabilitation facilities. 3 lectures, 3 lab. Prereq: All 300 level clinical nursing courses. Sp, F

412 Psychosocial Long-Term Nursing Theory (3) Theoretical component of 411. For RN’s only. Prereq: 316, 325. Sp, F

414 Community Mental Health Nursing (6) Nursing needs of clients and groups with psychosocial and/or long-term health problems. Clinical experiences provide opportunities for the student to apply the nursing process to clients and groups in a variety of acute, extended care, and community settings. 3 lectures, 3 lab. Prereq: All 300 level nursing courses. For non-nurse MSN students only. F

415 Family/Community Health Nursing (6) Application of the nursing process to individuals, families, groups, and communities in the childbearing/rearing stages of development. Clinical experiences provide opportunities for the student to apply the nursing process to families in a variety of hospital, extended care, and community settings. 3 lectures, 3 lab. Prereq: All 300 level nursing courses. For non-nurse MSN students only. Sp

450 Physiological Principles (3) Concepts and principles of normal and abnormal body functions, tissues and organ physiology as a basis for integration of system physiology and for understanding pathophysiological mechanisms. Prereq: RN status or consent of instructor. No credit for students who have taken 300. 3 lab. F, Sp

453 Oncology Nursing (3) In-depth exploration of cancer problem; relates cellular kinetics to theories of carcinogenesis and metastasis; treatment modalities and nursing interventions utilized in all phases of the disease. Interdisciplinary approach is analyzed. Prereq: 411 or 412 consent of instructor. F

470 Special Topics (1-3) In-depth study of selected nursing topics, problems, or issues not covered in other courses. Topics determined by faculty and student interest. Prereq: Consent of instructor.

493 Independent Study (1-3) Nursing or health-related topic not covered in other nursing courses. Prereq: Senior standing or consent of instructor.

NUTRITION (725)

100 Introductory Nutrition (3) Nutritional concepts; current consumer issues in nutrition; nutritional needs through life cycle; international nutritional concerns and issues. A student who has received credit for NTR 300 may not receive credit for this course. F, Sp

101 Food Principles (3) Food selection, safety, preparation, evaluation, meal planning, service. 2 hours and 1 lab.

200 Fundamentals of Nutrition (3) Nutrition in normal and altered health states during life cycle; nutritional analysis of diets. Prereq: Chemistry 110 or equivalent. Zoology 230. A student who has received credit for NTR 101 may not receive credit for this course. F

202 Life Span Nutrition (3) Physiological development and psychosocial factors that influence nutrient needs and nutrition behaviors of individuals across the life span. Nutrition education strategies for various age groups. Prereq: 100. Zoology 230 or consent of instructor.

310 Physiological Chemistry (3) (Same as Biochemistry 310.)


314 Energy Metabolism and Metabolic Integration (3) Integration of carbohydrate, fat and protein metabolism as applied to nutrient utilization and requirements in humans. Prereq: 310, 313.

410 Professional Issues in Dietetics (1) Didactic registration, licensure, third party payments; dietetic practice; marketing dietetics; internship application preparation; public policy in dietetic practice. Prereq: Senior standing.

411 Nutrition in Disease (4) Metabolic processes of diseases and related issues; dietary modifications required. Prereq: 312, 313.

412 Food and Nutrition in the Community (3) Influence of health characteristics, geographic, social, economic, educational and cultural factors on food and nutrition. Prerequisites: minimum knowledge of food and nutrition problems to programs and services for families and communities with particular attention to disease prevention; public policy. Prereq: 302. 415.

413 Experimental Food Science (3) Individual and group laboratory experimentation in food science; microcomputer applications. Prereq: 312, PSSC 471, 1 hour and 2 labs.

414 Nutrient-Drug Interactions (2) Nutrient effects on efficacy and toxicity of drugs; drug effects on absorption, metabolism and excretion of nutrients. Prereq: 320 or equivalent.


420 Food and Nutritional Analysis (4) Principles, procedures, and instrumentation for analysis of food and body fluids. Interpretation of chemical, dietary, and anthropometric data in nutrition research. Prereq: 100, 310.


492 Field Experience: Nutrition (1-3) Prereq: Junior or Senior standing. Consent of instructor. Satisfactory/No Credit only.

493 Directed Study: Nutrition (1-3) Individual student: faculty experience. Prereq: Junior or Senior standing, consent of instructor. Satisfactory/No Credit only.

450 Physiological Principles (3) Concepts and principles of normal and abnormal body functions, tissues and organ physiology as a basis for integration of system physiology and for understanding pathophysiological mechanisms. Prereq: RN status or consent of instructor. No credit for students who have taken 300. 3 lab. F, Sp

453 Oncology Nursing (3) In-depth exploration of cancer problem; relates cellular kinetics to theories of carcinogenesis and metastasis; treatment modalities and nursing interventions utilized in all phases of the disease. Interdisciplinary approach is analyzed. Prereq: 411 or 412 consent of instructor. F

470 Special Topics (1-3) In-depth study of selected nursing topics, problems, or issues not covered in other courses. Topics determined by faculty and student interest. Prereq: Consent of instructor.

493 Independent Study (1-3) Nursing or health-related topic not covered in other nursing courses. Prereq: Senior standing or consent of instructor.

ORNAMENTAL HORTICULTURE AND LANDSCAPE DESIGN (740)

110 Environmental Horticulture (3) Basic plant sciences and their relationship to ornamental horticulture; introduction to awareness and appreciation of ornamental plants, design and management of home landscapes, selection and use of herbaceous plants and turfgrasses. 3 hours. F

220 Basic Landscape Plants (2) Identification, classification, adaptation, culture and landscape design uses of basic ornamental trees, shrubs, and vines. Prereq: 6 hours Botany or consent of instructor. 2 labs. E

230 Interior Plants (2) Identification, culture, design application, and propagation of foliage plants used in the interior landscape; introduction to interior management. 2 labs. Sp

280 Fundamentals of Landscape Design (3) History, of landscape design as it relates to contemporary applications. Awareness and sensitivity to the landscape; basic graphic skills and design theory with an emphasis on residential landscape planning. Introduction to land-form, landscape materials, and planting design. Prereq: 110, 220 or consent of instructor. 1 hour and 2 labs. E

310 Greenhouse Production and Management (3) Management and operation of a greenhouse for commercial purposes, research and institutional use, and home horticulture purposes. Prereq: 110, 220 or consent of instructor. 2 hours and 1 lab. E

310 Grounds Maintenance (3) Identification and understanding of turfgrasses; maintenance tasks; transplanting, soil preparation, pest control, irrigation, and fertilization. Prereq: 110. 2 hours and 1 lab. Sp

414 Nutrient-Drug Interactions (2) Nutrient effects on efficacy and toxicity of drugs; drug effects on absorption, metabolism and excretion of nutrients. Prereq: 320 or equivalent.


420 Food and Nutritional Analysis (4) Principles, procedures, and instrumentation for analysis of food and body fluids. Interpretation of chemical, dietary, and anthropometric data in nutrition research. Prereq: 100, 310.


451 Plant Tissue Culture (3) (Same as Botany 451.)

460 Professional Practices in Landscape Construction and Management (2) Professionalism, professionalism, proposals, bidding, estimating, specifications, and contract management in landscape services industry. Computer technology applied in project management and contract engineering. Includes presentations by industry representatives. Prereq: 350 or consent of instructor. 3 hours. Sp

468 Advanced Landscape Design (4) Comprehensive application of landscape design skills. Design applications involving site layout, landscape grading, applied landscape construction, and planting design. Analysis, preparation, and proposal writing for design projects. An equal number of credits is applicable to a variety of landscape projects. Prereq: 280, 350, and 380. 2 hours and 3 three hour labs. Sp

485 Computer Aided Landscape Design (3) Overview of Computer Aided Design (CAD) as it relates to landscape design and application. Understanding of site planning and construction of related landscape plan view and 3-D drawings. Introduction to operating system fundamentals, hardware, software. Prereq: 280, Agric. 290 or consent of instructor. Two 3-hour labs. F
PHILOSOPHY (745)

110 The Human Condition: Value and Reality (3) The meaning of life, the existence of God, freedom of the will, human nature and values. Writing-emphasis course.

111 The Human Condition: Knowledge and Reality (3) The place of mind in a material universe and the nature and possibilities of human knowledge. May be taken before 110. Writing-emphasis course.

120 Foundations of Western Thought: Antiquity through 1500 (3) Plato, Late Antiquity and the Medieval Period. Writing-emphasis course.

121 Foundations of Western Thought: 1500 through Early Twentieth Century (3) Development of Rationalist and Empiricist thought, Nineteenth Century and early Twentieth Century Philosophy. May be taken before 120. Writing-emphasis course.

130 Critical Thinking (3) An introduction to practical reasoning in natural language, designed to enhance skills in recognizing, analyzing, evaluating and constructing arguments. Satisfies Liberal Arts Basic Skills Requirement "Mathematics, Computer Science or Logic".

135 Formal Logic (3) Introduction to formal deductive systems: propositional and predicate logic. Satisfies Liberal Arts Basic Skills Requirement "Mathematics, Computer Science or Logic".

200 Special Topics (3) When content varies, may be repeated. Maximum 6 hours.

240 Ethics (3) Theories of ethical values. Writing-emphasis course.

242 Ethical Theory and Its Applications (3) A study of moral values and principles in theoretical and practical contexts. Open only to students registered in the College of Business Administration.

290 Social and Political Philosophy (3) Basic problems and concepts of social and political philosophy.

300 Ancient Western Philosophy (3) Writing-emphasis course.

322 Medieval Philosophy (3) Development of medieval thought from St. Augustine to William of Occam. Secondary and primary sources. (Same as Medieval Studies 322.) Writing-emphasis course.

324 Seventeenth- and Eighteenth-Century Philosophy (3) Writing-emphasis course.

326 Nineteenth- and Twentieth-Century Philosophy (3) Writing-emphasis course.

335 Intermediate Formal Logic (3) Metatheory of formal logic and philosophy of logic. Prereq: 135 or consent of instructor.

342 Business Ethics (3) Ethical problems as they confront both business as a social institution and individuals in business.

344 Professional Responsibility (3) Critical analysis of selected classic texts from philosophy, religious studies, and social sciences dealing with responsibility and the nature of professionalism. Theoretical principles and analytical skills applied to selected case studies and other detailed descriptions of professional practice from engineering/architecture; business accounting, and at least one of law/politics; helping professions (social work, human services, ministry); teaching. (Same as Religious Studies 344.)

345 Medical Ethics (3) Ethical issues in medicine such as abortion, euthanasia, human experimentation, fairness in medical care delivery and the doctor-patient relationship. (Same as Religious Studies 345.)

346 Environmental Ethics (3) Issues concerning the nature of the environment and the place of humanity within it.

349 War and Morality (3) Moral justifications for war (just war), legal and moral constraints in war (just in war).

350 Aesthetics (3) Philosophical discussion of art. Writing-emphasis course.

353 Philosophy and Literature (3) Nature of literature; philosophical assumptions in literary works. Writing-emphasis course.

350 Introduction to Philosophy of Science (3) Standard topics in philosophy of science: scientific method, laws of nature and theories, problem of induction, explanation, measurement. No background in logic is presupposed.

353 Conceptual History of Science (3) Historical evolution of thought in astronomy, mechanics, and the study of living things, from the Greeks through the early twentieth century. Prereq: 8 hours of physical science or consent of instructor.

370 Philosophy of Religion (3) Analysis of basic issues in the philosophy of religion. (Same as Religious Studies 370.)

374 Philosophy and Religion of India (3) (Same as Religious Studies 374.)

376 Buddhist Philosophy and Religion (3) (Same as Religious Studies 376.)

379 Religion and Philosophy in China (3) (Same as Religious Studies 379.)

380 The Concept of Woman (3) The nature of woman as it has been conceived by major western philosophers from Plato to Simone de Beauvoir. (Same as Women's Studies 380.) Writing-emphasis course.

382 Philosophy of Feminism (3) Various feminist theories and their application to social issues of concern to women today. (Same as Women's Studies 382.)

390 Philosophical Foundations of Democracy (3) Philosophical problems relating to the nature and justification of the central values, principles, and concepts of democratic society. Writing-emphasis course.

393 Marxism (3) Basic philosophical issues in Marxist thought: ideology, dialectics, praxis, the critique of modern society. (Same as Russian and East European Studies 393.)

395 Existentialism (3) Themes related to freedom and finitude in the tradition that begins with Kierkegaard and Nietzsche, and extends to Heidegger and Jaspers, Sartre and Merleau-Ponty.

400 Special Topics (3) When content varies, may be repeated. Maximum 6 hours.

411 Modern Religious Philosophies (3) (Same as Religious Studies 411.)

412 Classical Indian Systems of Philosophy: The Moksha Tradition (3) (Same as Religious Studies 412.)

420 Topics in History of Philosophy (3) One or more figures or movements from antiquity through mid-twentieth century. Prereq: 8 hours of philosophy or consent of instructor. When content varies, may be repeated. Maximum 9 hours.

425 American Philosophy (3) Colonial to early 20th Century. Prereq: 6 hours of philosophy or consent of instructor. Writing-emphasis course.

440 Contemporary Ethical Theory (3) Topics in metaethics or ethics. Prereq: 6 hours of philosophy or consent of instructor.

446 Theoretical Issues in Medical Ethics (3) Prereq: 240 or 345 or consent of instructor. (Same as Religious Studies 446.)

460 Philosophy of Science (3) Methodological and conceptual issues in the natural and social sciences: patterns of theory modification and replacement, the nature of explanation and causation, the status of theoretical entities. Prereq: 350 and one year of natural or social science, or consent of instructor.

465 Philosophy of History (3) Speculative and critical aspects of philosophy of history. Prereq: 6 hours of philosophy or consent of instructor.

473 Philosophy of Mind (3) Problems of mind and body in relation to consciousness and personal identity. Prereq: 6 hours of philosophy or consent of instructor.

475 Analytic Metaphysics and Epistemology (3) Topics in metaphysics and epistemology in recent Anglo-American tradition. Prereq: 6 hours of philosophy or consent of instructor.

476 Philosophy of Language (3) Survey of issues such as meaning, reference, and truth. Prereq: 6 hours of philosophy or consent of instructor.

479 Studies in Recent Continental Philosophy (3) Selected thinkers or topics from areas such as Existentialism, Phenomenology, Hermeneutics, Structuralism, Post-Structuralism. Prereq: 6 hours of philosophy or consent of instructor. When content varies, may be repeated. Maximum 6 hours.

481 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

PHYSICAL EDUCATION SERVICE PROGRAM (764)

The following courses may not be repeated:

200 Special Topics (1-2) When content varies, may be repeated. Maximum 6 hours.

201 ARC WSI-Handicapped (1)

202 Badminton (1)

203 Elementary Ballet I (2)

204 Elementary Ballet II (2)

205 Basketball (1)

206 Bowling (1)

209 Flag Football (1)

210 Folk and Square Dance (2)

211 Golf (1)

212 Handball (1)

213 Ice Skating (1)

214 Elementary Jazz I (2)

215 Elementary Jazz II (2)

216 Martial Arts: (Special Topics) (1)

219 Coed Gymnastics: Men's Apparatus (1)

220 Elementary Modern Dance I (2)

221 Elementary Modern Dance II (2)

222 Paddleball (1)

223 Personal Safety and Self-Defense (1)

224 Physical Fitness: Conditioning (1)

225 Physical Fitness: Exercise to Music (1)

226 Exercise and Weight Control (1)

229 Physical Fitness: Jogging (1)

230 Physical Fitness: Swimming (1)

231 Physical Fitness: Walking (1)

222 Racquetball I (1)

223 Racquetball II (1)

234 Soccer (1)

235 Social Dance (2)

236 Softball (1)

239 Beginning Swimming (1)

240 Intermediate Swimming (1)

241 Emergency Water Safety (1)

242 Tap Dance I (2)

243 Tap Dance II (2)

244 Tennis I (1)

245 Tennis II (1)

246 Track and Field (1)

249 Tumbling I (1)
250 Tumbling II (1)
251 Volleyball (1)
252 Weight Training (1)
253 Coed Gymnastics: Women's Apparatus (1)
254 Yoga and Relaxation (1)
255 Water Safety Instructor (1)
256 Lifeguarding (1)

276 Fitness for Life (2) (Same as HPSS 276)

PHYSICS (773)

121-122 Introductory Physics (3,3) For students whose major is outside the physical sciences. Concepts of physics developed by observation of phenomena and logic. Use of a minimal amount of mathematical analysis. 121- Description of motion, forces, energy and momentum, properties of matter. 122: Electricity, magnetism, light, topics from modern physics. Instructor determines properties of atoms and nuclei. Must be taken in sequence. Prereq: Coreq for 311, 231 or 138 and Mathematics 231. Coreq: Mathematics 241.

321 Thermal Physics (3) Concepts of temperature and heat, laws of thermodynamics; elementary statistical mechanics; applications to physical and chemical phenomena. Prereq: 311, or 231 and consent of instructor.

341 Introduction to Nuclear Physics (3) Introductory theoretical nuclear physics with emphasis on applied aspects. Prereq: 240 or 232.


361-362 Electronics Laboratory (3,3) Electronic devices and instrumentation techniques in the physics laboratory. 361: Basic analog and digital electronics, including elementary building blocks of relevance to data acquisition systems, operation amplifiers, digital-to-analog and analog-to-digital conversion, use of standard laboratory instruments, and applications of microcomputers. 362: Advanced instrumentation techniques applied to the study of electronic circuits as dynamic physical systems. Various forms of noise, electrical and optical techniques, Fourier analysis and synthesis, nonlinear circuit dynamics. Prereq: 138 or 232. 6 hours lab per week.

401 A Survey of Physics (3) A survey of physics from elementary times to current understanding of the unified principles and fundamental laws of nature. These include the philosophical and mathematical principles. Classical mechanics, quantum mechanics, electromagnetic phenomena, statistical mechanics, nuclear and subnuclear processes, and their interactions. Consideration of the effects of physics on society and the practice of physics from a value-oriented perspective. Written reports on original physics papers. Applications to atomic, molecular, nuclear, and condensed matter physics. Must be taken in sequence. Prereq: 240 or equivalent. Math 345.

421 Modern Optics (3) Transmission of light in uniform, isotropic, and anisotropic media, interference, diffraction at interfaces; mathematics of wave motion and interference effects. Rudiments of Fourier optics and holography. Prereq: 431, or either 232 or 138, and consent of instructor. 3 hours lecture, 3 hours lab.

425 Principles of Non-Destructive Testing (3) (Same as Engineering Science and Mechanics 425.

431-432 Electricity and Magnetism (3,3) Electrostatics, magnetostatics, coupled electric and magnetic fields, Maxwell's Equations, electromagnetic waves and radiation. Prereq: 226 or 138.

461-462 Modern Physics Laboratory (3,3) 461: Introduction to fundamental and modern techniques in experimental physics, including techniques of measurement and data analysis. Selected experiments in nuclear, atomic, molecular and solid state physics, and modern optics. Prereq: 361 and either 240 or 411. 462: Advanced experimental techniques in modern physics: experimental team work. Quantum mechanical interpretation of the results and evaluation of scientific reports. Prereq: 461. 5 hours lab per week.

472-472 Health Physics (3,3) Radiological protection, interaction of electromagnetic radiation with matter, radiation units and units, portal control and extended sources, x-rays and gamma rays, radiation detection and measurement of charged particles with matter, stopping power, range, energy relations, counting statistics, shielding, dosimetry, waste disposal, criticality prevention, radiation biology and ecology. Prereq: consent of instructor.

490 Senior Seminar (1-3) Topics of current interest. May be repeated with consent of department. Maximum 6 hours.

491 Foreign Study (3-15)

492 Off-Campus Study (3-15)

493 Research and Independent Study (1-3) Research and study in field of particular interest with faculty guidance. Consents of department is required. Maximum 5 hours.

PLANNING (782)

401 The City in the United States (3) Development and character of United States cities. Contemporary issues and selected case studies. (Same as Urban Studies 401.

402 Survey of Planning (2) History of city development and of planning with special attention to the United States experience in urban and other levels of planning. Study of the art, the process, the comprehensive plan, implementation devices. Planning issues in society. Not for credit for M.S.P. degree. (Same as Urban Studies 400.)

446 Housing (3) Nature and demand for housing in U.S. and abroad. U.S. experience in private market and public influences. Problems of change in housing supply, impact of new technology, and governmental programs to improve supply and quality of housing.

PLANT AND SOIL SCIENCE (792)

200 Current Topics in Environmental Science (1) Lectures and invited presentations on current environmental issues and careers in Environmental Science. Prereq: 210. 1 hour lab.

210 Introduction to Soil Science (3) Differences in soils; soil genesis, physical, chemical, and biological properties of soil; relation of soils to land use and pollution. Management of soils and their relationship to crop production and management. Prereq: 210. 2 hours lecture and 1 hour laboratory. 3 hours credit.

211 Introduction to Soil Science Laboratory (1) Experiments on topics covered in 210. Coreq: 210. 2 hours laboratory.

230 Introduction to Crop Science (3) Fundamentals of structure, classification, growth and reproduction of higher plants, physiology of plants and their reactions to environment. Principles and methods of growing several of the world's important agronomic, fruit and vegetable crops, detailing their origin and cultural requirements. 2 hours lecture and 1 hour laboratory. Prereq: Botany 110, 120 or Biology 110, 120.

292 Soil Morphology (3) Intensive course involving describing, classifying and interpreting soils in preparation for regional and national soil judging contests. Prereq: 210 and consent of instructor. May be repeated. Maximum 4 hours. 1 hour and 1 lab.

311 Soil Fertility (3) Influence of soil properties on plant nutrient availability and uptake, principles of fertilizer use and their reactions in soils. Prereq: 210. 2 hours and 1 lab.

312 Soil and Water Conservation (2) Hydrologic, agronomic, and engineering principles applied to resource management problems including floods and erosion control, soil drainages, and water quality. Prereq: 210. Coreq: 313 S.

313 Soil and Water Conservation Laboratory (1) Laboratory on topics covered in 312. Coreq: 312.

331 Field and Forage Crops (3) Agronomic principles of crop production and management. Crop improvement, crop production, soil and water management. Prereq: 210. 2 hours and 1 lab.

332 Crop Fruits (3) Fundamentals of site selection, crop propagation, tree training, pest control and related management factors for deciduous fruit crops. Prereq: 230. 2 hours and 1 lab.

333 Vegetable Crops (3) Characterization, economic importance, adaptability and production of vegetables.
for fresh and processing markets with emphasis on both warm and cool season crops. Prereq: 210 or 230. 2 hours and 1 lab. Sp-

334 Weed Management (3) Principles of weed interference, integrated management, herbicide selectivity and behavior. Specific recommendations for various crops and non-crop situations. Prereq: 210, 2 hours and 1 lab. F-

392 Practicum (2-4) Working with agricultural, environmental or human health enterprises in an student’s career interest. May not be used as 300-level prerequisite for any course in Plant and Soil Science. Prereq: Consent of advisor and faculty committee. E-

401 Seminar (1) Current topics in the plant and soil sciences. Required of senior oral and written comprehensive presentation; professional ethics; review of literature; assignments for written and oral presentations. Senior standing. Sp-

411 Soil Microbiology (3) Soil microbial population and the soil ecosystem; microbial transformations of inorganic and organic compounds; decomposition of residues; dynamics of soil organic matter. Prereq: 210 and Chemistry 11 or 350 or consent of instructor. 2 hours and 1 lab. F-

412 Soil Genesis, Classification and Mapping (3) Soil genesis and formation; observing and describing morphology of agricultural and forest soils; chemical and physical properties, classification, mapping. Two Saturday day trips required. Prereq: 210 or consent of instructor. 2 hours and 1 lab. F-

413 Soil Chemistry (3) Structure and chemical properties of soil materials with emphasis on the colloidal fraction and exchange, chemical equilibria, soil acidity, oxidation-reduction, weathering, nutrient availability and waste disposal. Prereq: 311 or consent of instructor. F-

414 Soil, Land Use and the Environment (3) Soil as an environmental component and soil properties affecting land use. Soil as a resource in development planning including nonengineering aspects of site selection for land use, soil survey and resource data in land use, recognition and prevention of soil pollution. Prereq: 210 or consent of instructor. F-

415 Soil Hydrology (3) Physical relationships among solid, liquid, and gaseous phases of the soil system. The relationships of soil properties to the processes governing transport of water, and chemicals in soil. Prereq: 210. 2 hours and 1 lab. F, A-

431 Crop Physiology and Ecology (3) Plant physiology and ecology applied to crop production. Effects of environmental and biological processes. Prereq: 230. Botany 321. 2 hours and 1 lab. F, A-

432 Bioclimatology (3) Solar energy budget; interactions between global, regional and local climates and biological systems; qualifications of macro and microclimates; microclimate modification, automated weather station data collection and analyses; biological responses to climatic stresses; climate variation and change and their biological systems. Prereq: One year of physical or biological science, junior standing. 2 hours and 1 lab. F, A-

433 Agricultural Pesticides (3) Regulation of pesticide development, manufacture, transportation, marketing and use. Structure, use, modes of action, degradation and environmental impact of pesticides used in agriculture, forestry and related areas. Prereq: 1 year biological sciences and 1 semester chemistry. 2 hours and 1 lab. Sp-

434 Postharvest Biology and Technology (3) Principles, methods, and practices related to the maintenance of quality of horticultural commodities. Emphasis is placed on preharvest management, harvesting, storage facilities and techniques, quality evaluation and the biological and physiological mechanisms related to maturation, ripening, and senescence. Two Saturday field trips. 2 hours and 1 lab. Prereq: 1 year biological sciences at junior standing level. Sp-

435 Principles of Plant Breeding (3) Genetic principles and techniques used in crop improvement. Prereq: Biology 220 or equivalent. 2 hours and 1 lab. Sp-

471 Statistics for Biological Research (3) Notation, descriptive statistics, probability, distributions, confidence intervals, hypothesis testing, chi-square tests, analysis of variance, mean separation procedures, linear regression and correlation. Prereq: Math 121 or equivalent. 3 hours and 1 rec. F-

493 Problems in Plant and Soil Science (1-3) Special research or library problems in plant and soil science. May be repeated. Maximum 6 hours. E-

POLITICAL SCIENCE (801)

101 United States Government and Politics (3) Introduction to fundamental institutions and processes of American political systems including the Constitution, Congress, the presidency, and the courts.

102 Introduction to Political Science (3) Introduction to politics and political systems.

107 Honors: United States Government and Politics (3) Analyzing the political system for students with superior ability. Admission by permission of department for students with at least a B average; entrance exam not accepted on basis of strong placement scores and high school record.

201 Introduction to Political Analysis (3) Nature, character, and functions of research design, data collection, and statistical techniques used in the study of politics.

311 Contemporary Issues in American Public Policy (3) Selected public policy issues confronting the nation, including the background, nature, and effects of present policies, and options for the future. Writing-emphasis course.

312 Popular Culture and American Politics (3) Popular culture related to American public government focusing on the role of film, television, radio, music, fashion, art, and sports. Writing-emphasis course. (Same as American Studies 312)

315 Tennessee Government and Politics (3) Major elements in Tennessee government and politics. Prereq: 210. 2 hours and 1 lab. F-

320 State Government and Politics (3) Setting, institutions, and processes of government in the fifty states: generalizations and comparisons, with emphasis on federalism and inter-governmental relations.

321 Urban Politics and Process (3) Development of political systems and public policy in modern urban America. Writing-emphasis course. (Same as Urban Studies 321)

322 Minority Group Politics in the United States (3) Content varies. May be repeated with the consent of the department. Maximum 6 hours. (Same as African-American Studies 322)

323 Law in American Society (3) Law as a process through which social problems are addressed in the United States. Examples from case law, legislation, and administrative regulation. Writing-emphasis course.

331 Judicial Process (3) Courts as components of political systems, and procedure policy formulation through judicial decision making.

340 Introduction to Public Administration and Public Policy (3) Public agencies, their organization, personnel, and financial management and administrative responsibility, the policy-making process, political environment.

350 Political Change in Developing Areas (3) Characteristics and problems of political changes with primary focus on developing areas. Writing-emphasis course.

355 Latin American Government and Politics I (3) Introduction to contemporary conditions in Latin America. (Same as Latin American Studies 355). Writing-emphasis course.

361 Politics in Western Democracies (3) Political culture patterns, and institutions of Western democratic systems. Writing-emphasis course.

365 Introduction to International Relations (3) Resource availability, international economics, international security and peace (imperialism, war, defense, the balance of power, international law and organizations). Writing-emphasis course.

366 United States Foreign Policy Process (3) Processes through which United States foreign policies are made and implemented, focusing on interaction between federal bureaucracy and the roles of the President, Congress, the press, and public opinion.

370 Contemporary International Problems (3) Analysis of current international events.

374 American Political Thought (3) Major themes and ideas in American political thought related to the development of American political institutions, values, and practices. Writing-emphasis course.

387-388 Junior Honors Seminar (3,3) Required of honors majors; admission with consent of department.

410 Special Topics in Political Science (3) May be repeated with consent of department. Maximum 6 hours.


420 Political Attitudes and Behavior (3) Systematic examination of political attitudes, public opinion and political behavior. (Same as American Studies 420)

421 Political Parties and Interest Groups (3) Analysis of political parties, interest groups, campaigns and elections.

430 United States Constitutional Law: Sources of Power and Restraint (3) Judicial review, constitutional powers of the President and Congress, federalism, sources of regulatory authority, and constitutional protection of political and economic rights.

431 United States Constitutional Law: Civil Rights and Liberties (3) Current issues in civil rights and liberties including: first amendment freedoms, equal protection, due process, privacy, and the right of the accused.

440 Public Management and Human Resources (3) How to mobilize and manage technical and human resources in pursuit of public sector organization goals.

441 Budgetary Process and Financial Management (3) Fiscal planning, budget and expenditure processes in government, their policy and administrative implications.

442 Administrative Law (3) Legal dimensions of administrative law and procedures, and constitutional controls over administrators.

452 Black African Politics (3) Recent evolution and current political environment of Black African nations. (Same as African-American Studies 452). Writing-emphasis course.

454 Government and Politics of China and Japan (3) Political setting, structure and political processes in China and Japan. Writing-emphasis course.

455 Latin American Government and Politics II (3) Origins and development of the Soviet political system, and selected policy areas. (Same as Russian and East European Studies 455). Writing-emphasis course.

459 Government and Politics of the Soviet Union (3) Origins and development of the Soviet political system, and selected policy areas. (Same as Russian and East European Studies 455). Writing-emphasis course.

461 Policy Making in Democracies (3) Comparative approach to theory and process of making public policies.

463 Contemporary Middle East Politics (3) Governments and movements in the Middle East, their characteristics, bases, and interrelationships.

470 International Law (3) Nature and development of international law and compliance with it. Particular attention to function of international law in the context of international conflict.

475 Ancient and Medieval Political Thought (3) Major political thinkers from Socrates to Marsilio of Padua. (Same as Medieval Studies 475)

476 Modern Political Thought (3) Major western political thinkers from Machiavelli to twentieth century. Writing-emphasis course.

488 Senior Honors Thesis and Seminar (3,3) Required of honors majors; admission with consent of department.

491 Foreign Study (1-15) Prereq: Consent of Department. May be repeated. Maximum 15 hours.

492 Off-Campus Study (1-15) Prereq: Consent of Department. May be repeated. Maximum 15 hours.

493 Independent Study (1-15) Prereq: Consent of Instructor. May be repeated. Maximum 15 hours.

494 Internship (1-6) Prereq: Consent of department. May be repeated. Maximum of 6 hours. SNC only.
320 Motivation (3) Survey of theories and related research; discussion of applications. Prereq: 110 or equivalent and 210 or consent of instructor.

330 Abnormal Psychology (3) Individual and environmental factors in deviant and maladaptive behavior; neurotic and psychotic reactions. Contemporary methods of treatment. Prereq: 110 or 220, or consent of instructor. E

359 Laboratory in Human Relations (3) Interpersonal relationships and communication through structured experiences in small groups. Prereq: 110 or equivalent, and consent of instructor. May be repeated. Maximum 6 hours.

360 Social Psychology (3) Theories, methods, and findings of research concerning individual behavior in a social context. Prereq: 110 or equivalent, and 210 or 220. E

370 Ethology and Sociobiology (3) Basic concepts in the evolutionary approach to behavior, including application to psychology, the social sciences, and the arts. (Same as Zoology 370). Sp

375 Working with Data (3) Data organization and analysis; using graphs and figures to display data, and interpretation of data as presented in various formats. Not open to students who have received credit for Psychology 385 or 395, Mathematics 115, or Statistics 201.

382 Contemporary Topics in Psychology (3) Current issues or problems, such as ethical psychology, technology, and artificial intelligence, or stereotypes. Prereq: 110 or equivalent and 210 or 220, or consent of instructor. May be repeated. Maximum 6 hours may be applied toward major.

385 Statistics in Psychology (3) Descriptive statistics; logic of hypothesis testing and statistical inference. Basic parametric and non-parametric tests. Prereq: Mathematics 110. Not open to students with credit in Mathematics 115, Statistics 201, or equivalent. E

386 Methods of Research in Psychology (3) Fundamentals of the design, conduct, and interpretation of research, including research, systematic observation, experiments, quasi-experiments, and program evaluations. Focus on both laboratory and natural settings. Prereq: 110 or equivalent, 210 or 220, and 385 or Statistics 201 or Mathematics 115, or equivalent. F, Sp

396 Laboratory in Psychology (3) Introduction to techniques used in the laboratory to study topics in psychology, such as perception, memory, learning, and social behavior. Prereq: 395. F, Sp

399 Supervised Research and Field Work (1-3) Field experience in community-based research and service settings. Prereq: 110 and 210 or 220, and 385 or Statistics 201 or Mathematics 115, or equivalent, and consent of instructor. May be repeated. Credit is given for a maximum of 6 hours in this course.


409 Group Facilitation (3) Study of theory and technique through supervised experience in small groups. Prereq: 359 and consent of instructor. May be repeated. Maximum 6 hours.


420 History and Systems of Psychology (3) History of psychological thought. Classical approaches and recent developments. Prereq: 110, 210, 220, and 385 or Statistics 201 in Psychology. F

424 Psychology and the Law (3) Psychological aspects of legal and criminal processes. Prereq: 110 or equivalent, upper-division standing and consent of instructor.

430 Health Psychology (3) Psychological factors related to health and illness, including stress, personality, and environment. Application of psychological treatment to physical illness. Prereq: 110 or equivalent, 210.

434 Psychology of Gender (3) Biological, psychological, and social factors in gender. Importance of gender roles and stereotypes for behavior and experience. Prereq: 110 or equivalent, 210, 220. (Same as Women's Studies 434.)

450 Organizational Psychology (3) Social psychological analysis of organizations, emphasizing role-theory and group dynamics. Prereq: 360. (Same as Management 440.)


459 Comparative Animal Behavior (3) (Same as Zoology 459.) F

461 Physiological Psychology (3) Nervous system and physiological correlates of behavior. Biological basis of emotion, learning, memory, consciousness. Prereq: 110 or equivalent, 210, and one year of Biology or Zoology.

469 Laboratory in Physiological Psychology (3) Laboratory studies of nervous system and physiological correlates of behavior. Coreq: 461.

470 Theories of Personality (3) Major theories of human personality and their development. Prereq: 220 and 300 or 330. F, Sp

480 Theories of Learning (3) Classical and current approaches to learning and cognition. Prereq: 310.

482 Topics in Psychology (3) Intensive analysis of special topics, such as African-American Psychology or evaluation of programs in the community. Prereq: 210 or 220 and at least 9 credit hours in 300 level courses. Recommended: 385, 395, May be repeated. Maximum of 6 hours may be applied toward the major.

489 Supervised Research I (1-9) Prereq: Consent of instructor. May be repeated. Recommended 6 credit hours: 385, 489, 491, 492, and 493 may be combined toward the major. E

491 Foreign Study (1-15) Prereq: Consent of instructor. May be repeated. Maximum 12 hours in 399, 489, 491, 492, and 493 may be combined toward the major.

492 Off-Campus Study (1-15) Prereq: Consent of instructor. May be repeated. Maximum 12 hours in 399, 491, 492, and 493 may be combined toward the major.

493 Independent Study (1-15) Prereq: Consent of instructor. May be repeated. Maximum 12 hours in 399, 491, 492, and 493 may be combined toward the major.

494 Senior Seminar: Great Ideas in Psychology (3) Key ideas that have shaped conceptions of humankind. Exploration of historical development, scientific evolution, and larger social context. Prereq: Consent of instructor and senior standing. Writing-emphasis course. F, Sp

PUBLIC HEALTH (839)

300 Introduction to Public Health (3) Aspects of public health including discussion of contemporary and controversial health issues. E

305 Communicable and Noncommunicable Diseases (3) Modern concepts of diseases: etiology of common communicable and noncommunicable diseases. Prereq: 1 year of biological science or consent of instructor. F

310 Environmental Management and Control (3) Contemporary principles of control of disease-producing agents in our environment. Emphasizes concepts for effective application of control principles to vocational endeavors and/or daily living activities including: drinking water quality (chemical, physical problems including prevention and control. Prereq: 1 year of biological science or consent of instructor. F

400 Consumer Health (3) Prereq: As Health 400.)
374 Philosophy and Religion in India (3) Survey of the development of the major non-Buddhist themes of philosophical and religious thought in India. (Same as Philosophy 374.) Writing-emphasis course.

376 Buddhist Philosophy and Religion (3) Survey of the origins of the Buddhist faith and further development of Buddhist philosophy and religion in India, China, Korea, Japan, the countries of Southeast Asia, and beyond. Writing-emphasis course. (Same as Philosophy 376.)

379 Religion and Philosophy in China (3) Traditional thought and religion of China in its cultural setting as a basis for understanding modern China. (Same as Philosophy 379.) Writing-emphasis course.

383 Zen Buddhism (3) Historical, philosophical, and meditational aspects of Zen. Special emphasis on motifs of emptiness, non-mind, and enlightenment and on practices of meditation and the use of the koan. Recommended Prerequisites: One or more of the following: 376, 379, 385.

385 Contemporary Jewish Thinkers (3) Renewal trends in Nineteenth and Twentieth-Century Judaism. Writing emphasis. May be repeated. Maximum 6 credit hours.

386 Voices of the Holocaust (3) Historical underpinnings of Nazi genocides such as that of the Jewish people, Gypsies, and homosexuals. The economic, social, and philosophical trends supporting massive genocide.

389 Literature of the English Bible (3) (Same as English 389.)

390 Topics in Religion Studies (3) Selected figures, themes and issues. Variable content. May be repeated. Maximum 6 hours.

405 Modern Jewish Thought (3) History, culture, and geography of the modern state of Israel from 1948 to the present. Focus on the political complexities of the Middle East. Israeli culture and literature. Writing emphasis course.

411 Modern Religious Philosophies (3) Religious implications of major Western thinkers and movements from Nicolas of Cusa to the nineteenth century German Idealists. (Same as Philosophy 411.)

412 Classical Indian Systems of Philosophy: The Moksha Tradition (3) Selected writings and philosophical problems of the traditions of Samkhya, Yoga, Vedanta, Buddhism, or Jainism. Prerequisite: Religious Studies/Philosophy 374 or 376 or consent of instructor. (Same as Philosophy 412.)

416 Jesus and Paul Compared (3) Central ideas and concepts of each person compared with equivalent concepts of the other. Advanced study of the Gospels and Epistles of Paul, involving extensive independent research.

421-422 Elementary Sanskrit I, Elementary Sanskrit II (3,3) 421-Introduction to the grammar of classical Sanskrit. 422-Introduction to the reading of epic and classical Sanskrit texts. Prerequisite: 421 or consent of instructor.

425 Seminar in Western Religions (3) Selected figures, themes, movements, and problems. Prerequisite: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

430 Seminar in American Religion (3) Selected figures, themes, movements, and problems. Prerequisite: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

435 Seminar in Asian Religions (3) Selected figures, themes, movements, and problems. Prerequisite: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

440 Seminar in Comparative Religion (3) Selected figures, themes, movements, and problems. Prerequisite: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

446 Theoretical Issues in Medical Ethics (3) (Same as Philosophy 446.)
401-402 Advanced Grammar, Conversation, and Composition (3,3) Prereq: 312 or equivalent. (Same as Russian and East European Studies 401-402.)

425 Introduction to Descriptive Linguistics (3) (Same as German 425, French 425, Spanish 425, and Linguistics 425.)

426 Introduction to Historical and Comparative Linguistics (3) (Same as German 426, French 426, Spanish 426 and Linguistics 426.)

451-452 Senior Seminar (3,3) For majors in Russian; minors admitted at the discretion of the instructor. Intensive study of language, literary style, and literary criticism based on selected major novels. (Same as Russian and East European Studies 451-452.)

460 Internship (1-15) Career-related experiences in the United States or abroad with permission of the Language & World Business Director. For Language & World Business majors only. Satisfactory/No Credit only.

491 Foreign Study (1-15)

493 Independent Study (1-15)

RUSSIAN AND EAST EUROPEAN STUDIES (887)

301-302 Introduction to Russian Literature (3,3) (Same as Russian 301-302.)

321 Works of Dostoevsky in English Translation (3) (Same as Russian 321.)

322 Works of Tolstoy in English Translation (3) (Same as Russian 322.)

340-341 History of Russia (3,3) (Same as History 340-341.)

375 Geography of the Soviet Union (3) (Same as Geography 375.)

393 Marxism (3) (Same as Philosophy 393.)

401-402 Advanced Russian Grammar, Conversation and Composition (3,3) (Same as Russian 401-402.)

410 Selected Topics in Russian and East European Studies (3) Interdisciplinary seminar on a selected topic using a comparative approach. Requires research using Russian language sources, regardless of country, and a paper of 25-30 pages. Writing-emphasis course.

451-452 Senior Seminar (3,3) (Same as Russian 451-452.)

469 Soviet Foreign Policy (3) (Same as Political Science 469.)

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

SAFETY (890)

400 Directed Independent Study (1-3) Individual identification and study of safety or safety education program issue. Specific proposal must be made to instructor before registration. May be repeated. Maximum 12 hours. Prereq: Consent of instructor.

441 Driver and Traffic Safety Education (3) Preparation of traffic safety instructors for schools, colleges, industry and commercial agencies. Each participant required to teach at least two non-drivers to drive. Valid driver's license required. 3 hours lecture and 2 hours lab.

442 Advanced Driver and Traffic Safety Education (3) Teaches driver education through use of simulation, multimedia, and self-paced driving range. Emphasis placed on teaching skills and supervision. 2 hours and 2 labs.

443 Sports and Recreational Safety (3) Accident prevention and injury control in sports activities; philosophy of sports safety; human environmental factors and interpersonal dynamics in sports injury and control; risk-taking and decision making processes; and contributions of sports medicine to safety. 3 hours and 2 labs. Sp

452 General Safety (3) Principles, practices, and procedures in general safety. Safety problems in school, traffic, recreation, industry, home, and other public areas. F, Su

470 Special Topics (1-15) Study in selected disciplinary or professional areas of safety. May be repeated. Maximum 12 hours.

SOCIAL WORK (905)

200 Introduction to Social Work (3) Emergence of the social work profession; professional mission; knowledge, skills, and values; practice settings; client groups; helping services; career patterns; practice methods. Designed to assist students to consider their ability for careers in social work.


310 Social Work Practice I (3) Knowledge, values, and skills for entry level generalist practice in a variety of settings. The social work problem solving process, different service systems, ethics and social work, and the role of the social worker. Concurrent field experience. Prereq: Initial progression. Pre or Coreq: 314.


313 Human Behavior and Social Environment (3) Interdisciplinary, biological, social, cultural, environmental and psychological factors in human behavior. Person-in-environment over the life span with special attention to diversity, impact of racism, sexism, and other cultural factors. Integration of knowledge into a social work practice perspective. Prereq: Initial progression.

380 Field Practice in Social Work (1) Eight-hour per week supervised field experience with practice situations for developing professional skills, values, and attitudes. Coreq: 313 and 310.

412 Social Work Practice III (3) Generalist practice with emphasis on groups and communities, including treatment theories, techniques, and issues. Prereq: Full progression. Coreq: 416 and 480.


469 Field Practice in Social Work II (3) Six-hour per week supervised agency field practice for integration of theory and practice and critical examination of one's professional helping person. Concurrent field seminar on integration of knowledge and practice experiences. Prereq: Full progression.

491 Foreign Study (1-15) Prereq: Consent of Instructor.

492 Off-Campus Study (1-15) Prereq: Consent of Instructor.

493 Independent Study (1-15) Prereq: Consent of Instructor.

SOCIOLOGY (915)

110 Social Problems and Social Change (3) Increasingly acute and intense problems such as alcoholism, violence, crime, inequality, life-style preferences, and environmental issues within the context of social change. Assessment of control strategies. May be taken instead of 100.

120 General Sociology (3) Major concepts and theoretical approaches of sociology with emphasis on culture, socialization, social organization, and social stratification.

200 Sociological Analysis (3) Selected set of contemporary issues emphasizing theoretical and logical structure of the issues and development of data needed to enter informed debate on the issues. Students are expected to develop their own analytical arguments. Prereq: English 102 and either Sociology 100 or consent of instructor.

220 Interpersonal Communication (3) (Same as Speech 220.)

221 Varieties of Religious Community (3) (Same as Religious Studies 221.)

291 Sport in American Society (3) (Same as Physical Education 291.)

310 American Society (3) Institutional organization of contemporary American society with particular attention to major social issues. Writing-emphasis course.

311 Family (3) Theoretical frameworks and methodological approaches; their application in the sociological study of past and present family forms.

319 Sociology of Religion (3) Interrelationship of society, culture, and religion. (Same as Religious Studies 319.)

320 Interpersonal Communication Processes (3) (Same as Speech 320.)

321 Sociological Theory (3) Survey of contemporary issues and problems in sociological theory with an emphasis on their historical development and their importance for the field. Students are required to form critical appreciation of the topics addressed. Prereq: 200 or consent of instructor.

330 Computers and Society (3) History of computing and computer systems; capabilities of computer applications in various fields; social, cultural, and economic impacts.

331 Sociological Research (3) Issues in philosophy of social science, research design, sampling, methods of data collection, and interpretation. Students are required to form critical appreciation of the topics addressed. Prereq: 200 or consent of instructor.

332 Class Structure (3) Class structure and conflict; causes and consequences of stratified social inequality. Emphasis on the United States. Writing-emphasis course.

343 Race and Ethnicity (3) Social structural conditions of race and ethnic cleavages and social, economic, and political consequences. Emphasis on race and ethnicity in the United States. (Same as African-American Studies 343 and American Studies 343.) Writing-emphasis course.


345 Collective Behavior and Social Movements (3) Collective phenomena leading to social change, response to disaster, popular crazes, and social problems and development, organization, and function of social movements. Emphasis on American cases. (Same as American Studies 345.)

346 Sociology of Occupations (3) Occupations and professions as interest groupings in work settings and the labor market.

350 Criminology (3) Systematic inquiry into alternative definitions of crime, statistical distribution of different types of crime, and the work of the police.


352 Deviant and Social Control (3) Deviant, their patterns, social organization, and social control.

360 Environment and Resources (3) Relationship between scarcity of natural resources and changes in societal beliefs and social structure. Topics include social and physical limits to growth and collective action problems.
SPANISH (924)

111-112 Elementary Spanish (3,3) Language labora-tory required. Must be taken in Special. Not available to students eligible for Spanish 150, E. 

116 Honors: Elementary Spanish (3) An introductory course for students with a special interest in Spanish. Ideal for students with knowledge of another foreign language or for those who have had some previous (but not extensive) experience with Spanish. An enriched program with emphasis on basic skills of listening, speaking, writing, and reading Spanish. Special attention given to those skills needed for communication with Spanish speakers in real life situations. Grading scale and workload the same as regular course. Students with two years of high school Spanish or one year of college Spanish may not take the course for credit. Courses must be taken in sequence. Students receiving a grade of A or B in 116 will not be allowed to repeat 117 training course. Class size limited to 15 students.

150 Intermediate Spanish Transition (3) This course is designed to prepare students for enrollment in Span-ish 211. Prereq: Two years of high school Spanish a placement score below the level required for admission to Spanish 211. This class will not count toward the College of Liberal Arts intermediate-level foreign lan-guage requirement. For elective credit only. F, S

199 Spanish Language and World Business (2) The course will examine the foreign trade of companies in the local, state, and national levels. An interdisciplinary team of faculty from the Colleges of Business and Liberal Arts will provide an overview of the technical aspects of language study and international cultural awareness in world business. Restricted to students majoring in the program in Language and World Business. See the Director for further information. F, S

211-212 Intermediate Spanish (3,3) Prereq: 150 or 112 or Departmental Placement Exam. Must be taken in sequence. Students who place in 200 level courses from high school will receive six hours of elementary Spanish credit. E

217-218 Honors: Intermediate Spanish (3,3) Honors course for students of superior ability in Spanish. Incom-ing freshmen are admitted on the basis of a diagnostic test, high school achievement, and letter of recommendation. Classes normally held to a maximum of 16 students. Students follow enriched program with continuing am-plication upon Spanish speaking and with an introduction to reading literary selections. Students who earn an A or B in 218 receive credit for 300. Prereq: 111-112 or equiv-alent. F, S

291 Spanish Literature in English Translation (3) From the Golden Age to the Enlightenment, Don Quixote, the picaresque novel, and St. John of the Cross. Required of all majors. No foreign language or major credit. Writing emphasis course.

300 Spanish Transition (3) Development of linguistic skills necessary for success in 300 and above. Recommended for students who would benefit from additional training beyond 212 in the skills of speaking, reading, and writing Spanish. Particular atten-tion for preparation to read Hispanic literature and other advanced-level material. F

301 Spanish for Students of Other Romance Lan-guages (3) Accelerated class for beginning students of Spanish with strong background in another Romance language. Introduction to grammar, reading, and culture of Spanish and Spanish America. Prereq: 3 hours at 400 level in another Romance language or equivalent. 

323-324 Intermediate Conversation and Composi-tion (3,3) Designed to improve proficiency in oral and written communication in Spanish. Prereq: for 323: 312, 218, or equivalent. Prereq: for 324: 323, or equivalent.

335 Aspects of Spanish Literature (3) Introduction to Spanish literature, using selections from prose, drama, and poetry of the medieval, Golden Age, and modern periods. Required of all majors. Prereq: 323 or equivalent.

336 Aspects of Spanish American Literature (3) (Same as Latin American Studies 336.) Prereq: 323 or equivalent.

345 Spanish for Business (3) A practical course in Spanish at the business level. This course is designed to assist students in the acquisition of the necessary vocabulary and grammar to handle business transactions. Prereq: 323 or consent of instructor.
320 Special Education Strategies (3) Introduction to special education procedures, including formal and informal assessment, development of individual education programs, plans, appropriate medical procedures, and effective instructional strategies. Prereq: 310. Admission to Teacher Education Program.

331 Articulation Disorders (3) Prereq: Admission to Teacher Education Program. (Same as Audiology and Speech Pathology 331.)

340 Pre-internship Seminar (1) Objectives and policies of the internship program. Must be completed prior to the internship. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp

415 Language Development for the Hearing Impaired I (3) Language problems of hearing impaired contrasted with scope and sequence of normal language development. Formal linguistic systems used to describe language development problems.

416 Language Development for the Hearing Impaired II (3) Developmental and remedial systems of teaching language to hearing impaired children. Comprehension and production differences, idiomatic and figurative structures.

419 Speech Development of the Hearing Impaired (4) Theories of speech development, approaches in training perception and production of speech, and aural habilitation. Practicum experiences.

420 Psychology and Education of Students with Mild Disabilities (6) Nature and characteristics of persons with mild handicaps and the educational strategies appropriate for these persons. Prereq: 310, 320, Educational Curriculum & Instruction 422 and admission to Teacher Education Program. Coreq: 421.

421 Field Experience in Modified Programs (3) Practicum in teaching in modified programs: planning, developing, implementing, and evaluating instruction. Prereq: 310, 320, Educational Curriculum and Instruction 422 and admission to Teacher Education Program. Coreq: 420. Satisfactory/No Credit only. F

423 Communication Processes for the Hearing Impaired (3) Expressive and receptive vocabulary development in communication situations. Fingerspelling and educational applications of sign language.

424 Nature of Hearing Impairments (3) Anatomy and physiology of hearing; nature and causes of hearing loss; methods and instrumentation for assessment of hearing levels; interpretation of audiologic services to medical and other rehabilitative disciplines.

425 Introduction to the Psychology and Education of the Hearing Impaired (3) Primarily for those planning to teach the hearing impaired. Research related to psychology, social adjustment, communication methodology, language development and education of the hearing impaired. Survey of literature. Visits to programs.

430 Psychology and Education of Students with Moderate Disabilities (6) Nature and characteristics of persons with moderate/severe disabilities and the educational strategies appropriate for those persons. Prereq: 310, 320, Educational Curriculum & Instruction 422 and admission to Teacher Education Program. Sp

431 Field Experience in Comprehensive Programs (3) On-site teaching experience with moderately and severely handicapped children and youth. Prereq: 310, 320, Educational Curriculum & Instruction 422 and admission to Teacher Education Program. Coreq: 430. Satisfactory/No Credit only. Sp

433-434 Clinical Practice in Speech Pathology (1-4) (Same as Audiology and Speech Pathology 433-434.)

440 Voice Disorders (3) (Same as Audiology and Speech Pathology 440.)

454 Education of the Gifted and Talented Children (3) Psychometric and behavioral studies of giftedness. Analysis of past and present school practices in reference to curriculum and program implementation. Prereq: Admission to Teacher Education Program.

456 Speech and Language Basis of Learning Disabilities in the Classroom (3) Normal communication development; understanding of speech and language impairments in school-age students; integration of oral/ written communication skills into existing curriculum, especially for high incidence special education students.

470 Psychology of the Exceptional Child (3) General characteristics and educational needs of exceptional children. Implications of developmental variations for functioning as adults. Enrollment limited to non-education majors.

471 Internship I: Special Education (3-15) Testing methods and theories of teaching. Internship is completed in local public schools. Application for internship should be made upon admission to the Teacher Education Program. Prereq: 410 and admission to Teacher Education Program. Satisfactory/No Credit only. F

473 Audiology II (3) (Same as Audiology and Speech Pathology 473.)

482 Speech and Language Services in the Schools (3) Organization and implementation of speech and language programs. Emphasis on the IEP process as it affects assessment, case-selection, and programming for students ages 4-18. Prerequisites: 404, 410, 414; Supervision by Teacher Education Program.

484 Internship with Hearing Impaired Children (3) Practicum supervised with preschool, day school and residential students. Prereq: Admission to Teacher Education Program.

485 Student Teaching in Special Education (3-10) Intended for students in the four-year program or equivalent. Not to be substituted for internship (Educational Curriculum and Instruction 471, 472 or Special Education 471.) Prereq: Admission to Teacher Education Program. permission of Mentoring Team, and Educational Curriculum and Instruction 473. Satisfactory/No Credit only.

493 Directed Independent Study (1-3) Tutorial and specialized area. Prereq: Consent of instructor. May be repeated. Maximum 8 hours. S/NC or letter grade.

494 Aural Habilitation/Rehabilitation of the Hearing Impaired (3) (Same as Audiology and Speech Pathology 494.)

SPEECH COMMUNICATION (943)

100 Introduction to Speech Communication (3) Fundamentals of speech communication techniques and applications. Recommended for students who are concurrently enrolled in 200 level speech courses and desire additional work in dealing with their anxiety about speaking.

210 Public Speaking (3) Preparation and delivery of informative and persuasive speeches. Topics include research, organization, adapting to an audience, topic selection, reasoning, and evaluating the discourse of others.

220 Interpersonal Communication (3) Process by which thoughts, feelings, and actions affect and are affected by the face-to-face communication situation. (Same as Sociology 220)

230 Listening (3) Study of the principles and techniques of listening. Focuses on theoretical and practical listening skills.

240 Business and Professional Speaking (3) Basic principles of oral communication in business and professional organizations, including such topics as organizational/communication theory, group problem solving, formal presentations, and interviewing.

260 Communication and Society (3) Study of communication strategies and public opinion, with emphasis on classroom methods and materials, or oral presentations, demonstrations, drama, and public address.

270 Argumentation and Debate (3) Reasoned decision-making with emphasis on analysis, evidence, reasoning, constructing and refuting arguments.

280 Introduction to Oral Interpretation (3) Art of reading aloud: development of interpretative techniques and their application to selected passages of prose, poetry, and drama. Writing-emphasis course.

295 Communication Research Methods (3) Survey of contemporary methods used for research in Speech Communication. Emphasis will be on selecting and evaluating communication research reports.

300 Nonverbal Communication (3) Exploration of nonverbal communication from human communication perspective; origins and research, usage and coding of nonverbal behavior, research strategies, and theoretical approaches.

310 Persuasion (3) Methods which contribute to effective and ineffective persuasion. Topics include credibility, message construction, receiver variables.

320 Interpersonal Communication Processes (3) Social dimensions of interpersonal communication and relationship. Prereq: Speech Communication 220 or consent of instructor. (Same as Sociology 320)

330 Group Communication (3) Small group decision-making, evidence, argumentation, leadership, roles, and effects of group structure.

350 Communication Theory (3) Survey of social science approach to theorizing about communication.

355 Topics in Communication and Society (3) Content varies. Studies in social function of such communication forms as posters, speeches, songs, plays, demonstrations. May be repeated with consent of department: Maximum 6 hours.

370 Evidence and Argumentation (3) Concept of evidence in public controversies, use and sources of evidence, and conditions affecting credibility.

380 Advanced Oral Interpretation (3) Individual and group performances of prose literature and poetry. Prereq: 280 or consent of instructor. Writing-emphasis course.

390 History of Rhetorical Theory (3) Western rhetorical theory from Plato to the present.

400 Topics in Speech Communication (3) Variable content course affording opportunity to offer subject matter not covered in an existing course. Topics, scope of subject matter, and prerequisites to be determined by department. May be repeated. Maximum 6 hours. Major credit limited to 3 hours.

420 Communication and Conflict (3) Communication as an agent in the development, management and resolution of conflict at the interpersonal, small group, organizational, or societal levels.

430 Family Communication (3) Dynamics of interactions within family systems, marriage, and parent-child relationships. Study of verbal and nonverbal communication patterns, processes, and problems. Prereq: Child and Family Studies 220 or Speech Communication 320 or consent of instructor.

440 Organizational Communication (3) Organizational setting and those variables of the communication process that affect the quality of human interaction both within and outside the organization.

445 Internship (1-3) Supervised career-related experiences using Speech Communication theories and techniques in government and non-profit organizations, culminating in a written and oral report. Recommended for upper-level majors; minimum of at least 3 GPA, or by special permission of internship Director. S/NC only. May be repeated; maximum 6 hours. Major credit limited to 3 hours.

450 Propaganda (3) Study of political, social and economic propaganda in United States. World War I to present. Writing-emphasis course.

455 Studies in Rhetorical History and Criticism (3) May be repeated. Maximum 6 hours.
experience at approved sport management site. Em-

490 Sport Management Internship (1-15) Full-time
(Same as Recreation 415.)

415 Managing Leisure/Sport & Related Facilities (3)
Prereq: Progression to Sport Management Major and

490 Special Topics (1-3) Independent study in a specialized area of sport management. May be repeated. Minimum of 9 hours. Prereq: Progression to Sport Management Major.

STATISTICS (962)

201 Introduction to Statistics (3) Data collection; descriptive statistics, simple regression, and time series analysis; concepts of probability and probability distributions. Binomial and normal distributions, parametric and non-parametric tests, estimation of means; confidence intervals; contingency tables. Prereq: Mathematics 121.

250 Probability and Statistics for Scientists and Engineers I (3) Probability: Discrete and continuous random variables. Expectation, variance, and covari-

ance. Binomial, Poisson, hypergeometric, normal, exponential, and gamma models. Sampling distributions.

Central Limit Theorem. Estimation, confidence intervals and hypothesis testing. Prereq: or Coreq: Mathematics 241.

252 Probability and Statistics for Scientists and Engineers II (3) Hypothesis testing; analysis of variance, nonparametric test, simple linear regression, multiple linear regression, statistical process control. Prereq: 251 (or Statistics 201) and permission of instructor.

Students must also have a working knowledge of the UTCG VAX System or Coreq: 251.

261 Introduction to Statistical Software (3) Use of computer operating systems commands and packaged programs for statistical data analysis and related data management tasks. Use of UNT computing facilities.

Coreq: 252.

320 Statistical Methods (3) Linear regression and correlation; multiple regression, diagnostics, dummy variables, analysis of data. Emphasis on data analysis and interpretation. Use of computer facilities required. Not counted toward a major or minor in statistics. Not available for credit to students with credit in 461. Prereq: 201 or equivalent.


411 Introduction to Statistical Computing (3) Use of computer operating system commands and packaged programs for statistical analysis and related data management tasks. Not acceptable for credit for statistics majors. Prereq: 201 or 251.


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462 Analysis of Variance and Experimental Design (3) Analysis of variance techniques for single and multifactor models, post hoc procedures. Design considerations for completely randomized and split-plot experiments, balanced incomplete block and designs, response surface methodology. Major writing requirement. Prereq: 252 and 241 or graduate status and consent of instructor.

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483 Special Topics in Statistics (1-3) Topics vary. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.


THEATRE (976)

100 Introduction to Theatre (3) Understanding theatre, thought, philosophy, and production practice. Writing emphasis course.

220-221 Acting (3) 220-221 Acting techniques. Further exploration and development of acting techniques through exercises and beginning scene work. Prereq: 220. Writing emphasis course. Prereq: 221.

226 Voice and Diction (3) Voice production; attention to technique and diction. Writing emphasis course.

245 Basic Stage Costuming (3) Costume design and construction: basic theory and technique. Production participation required.

250 Introduction to Scenery Technology (3) Technology, set design and construction: basic theory and technique. Production participation required.

260 Fundamentals of Lighting and Sound Production (3) Survey of practical information on electricity, physics, psychology, and instrument engineering as it relates to stage lighting and sound production. Emphasis on hands-on skills in lab. Writing emphasis course.

310 Theatre History and Dramatic Literature I (3) History and literature of theatre. Drama in performance with particular emphasis on major trends and movements of European, Eastern and non-mainstream theatre from Antiquity to the Italian and French Renaissance.

311 Theatre History and Dramatic Literature II (3) History and literature of theatre. Drama in performance with particular emphasis on major trends and movements of European, Eastern and non-mainstream theatre from Antiquity to the Italian and French Renaissance.

312 Theatre History and Dramatic Literature III (3) History and literature of theatre. Drama in performance with particular emphasis on major trends and movements of contemporary international theatre from development of realism to present.

313 American Theatre (3) Development of theatre from origins to 20th century with emphasis on the evolution of plays, playwrights and major innovators.

320 Advanced Acting (3) Characterization and scene study in realistic plays. Prereq: 220-221 and consent of instructor. May be repeated. Maximum 6 hours.

322 Stage Movement (2) Introduction to and application of theatre movement techniques.

324 Theatre Dance 1 (2) Dance techniques incorporating elements of musical theatre. Prereq: 323 or consent of instructor.

430 Introduction to Costume Design (3) Development of research and rendering skills. Prereq: 245 or consent of instructor.

555 Introduction to Scenic Design (3) Introduction to art and craft of scenic design.

352 Introduction to Lighting Design (3) Mechanics and theory of stage lighting; problems in basic lighting practice. Prereq: 260.

401 Principles of Theatrical Design (3) Fundamental principles of design, visual and structural relationships. Projects will be assigned to develop understanding and perception.

405 Stage Make-Up (2) Problems in make-up design and application, character analysis, physiology and character study. Prereq: 100.
410 Special Studies in History, Literature and Criticism (3) Content varies. Concentrated study in a given period or area of Theatre History, Literature or Criticism. May be repeated.

420 Special Studies in Acting (3) Content varies. Exercises in selected concentrated areas such as styles, techniques, approaches, e.g., Shakespeare, movement, humor. Prior consent of instructor. May be repeated. Maximum 9 hours.

423 Period Movement and Dance (2) Movement styles and dances from the Renaissance to the 20th Century. Prereq: 323 or consent of instructor.

424 Theatre Dance II (2) Advanced dance technique incorporating elements of musical theatre. Prereq: 324 or consent of instructor. May be repeated. Maximum 6 hours.

425 Selected Musical Theatre Techniques (2) Study and practice of musical theatre material including both dance and vocal work. Prereq: 324 or consent of instructor. May be repeated. Maximum 4 hours.

426 Applied Phonetistics (3) Development of skills in transcription and reproduction of the principal varieties of the English Language in North America and Great Britain and selected foreign dialects in North America. Prereq: Consent of instructor.


446 Costume Pattern-making (3) Draping patterns for period costumes. Includes corsetry and the study of historic patterns 1500-1900. Prereq: 345 or consent of instructor.

450 Advanced Scenery Technology I (3) Study and practice of theatre wood working; production participation will be required. Prereq: 250. Graduate credit available to theatre M.F.A. students only.

451 Advanced Scenery Technology II (3) Study and practice of metaworking and plastics for theatrical productions; production participation will be required. Prereq: 250. Graduate credit available to theatre M.F.A. students only.

452 Advanced Scenery Technology III (3) Study and practice of stage rigging for theatrical productions; production participation will be required. Prereq: 250. Graduate credit available to theatre M.F.A. students only.

454 Scenery Painting (2) Introduction to materials, techniques, and principles of the craft. Emphasis on gaining skill and understanding through studio experience. Prereq: Consent of instructor.


456 Rendering (3) Techniques in monochrome and full color illustration of space and form. Some acquaintance with basic mechanical perspective and freehand sketching is assumed.

460 Advanced Lighting and Sound Technology (3) Projects in lighting and sound coordination. May include opera, dance, musical theatre, and "rock video". Final projects will be live productions. Emphasis on developing artistic sensitivity and subtlety in control. Prereq: 260.

462 Advanced Lighting Design (3) Advanced problems in lighting design and theory including areas such as lighting musical theatre, opera, and dance. Prereq: 382 or consent of instructor.

463 Sound Design (3) Sound design for the performing arts. Review of equipment and acoustical factors that affect sound production. Some practical experience will be selected from past plays. Final projects will be mixed, edited, and cued for production.

464 Computer-Assisted Design for Stage Lighting (3) Advanced techniques in computer-assisted design for stage lighting. Work with OAD and other stage lighting software for preparation of lighting plots and associated paperwork. Prereq: Theatre 362 or consent of instructor.

465 Aesthetics of Lighting Design (3) Theory and practice of stage lighting design with emphasis on the relationship between designers and non-design practitioners such as directors, actors, choreographers, architects, etc.

470-471 Playwriting (3, 3) Advanced instruction in the writing of plays. Prereq: Consent of instructor.

481 Applied Theatre: Costumes (2) Laboratory in costume design for departmental productions. Credit available to Theatre majors only or with consent of instructor. 90 hours of work required.

482 Applied Theatre: Scenery (2) Laboratory in scenography for departmental productions. Credit available to Theatre majors only or with consent of instructor. 90 hours of work required.

483 Applied Theatre: Lighting (2) Laboratory in lighting for departmental productions. Credit available to Theatre majors only or with consent of instructor. 90 hours of work required.

484 Applied Theatre: Performance (2) Laboratory in performance for departmental productions. Credit available to Theatre majors only or with consent of instructor. 90 hours of work required.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

**UNIVERSITY HONORS (983)**

118-128 Whittle Scholars Seminar (1,1) Sequence limited to and required of all Whittle Scholars in their freshman year. 118 concentrates on contemporary issues, 128 concentrates on aspects of leadership. Satisfactory/No Credit grading only.

237, 337, 437 Honors: Concentration in the Humanities (3, 3, 3) Small group studies of selected topics, issues or problems with a concentration in the humanities disciplines. Open to all students with a GPA of 3.25 or greater. Topics vary. May be repeated.

247, 347, 447 Honors: Concentration in the Social Sciences (3, 3, 3) Small group studies of selected topics, issues or problems with a concentration in the social sciences. Open to all students with a GPA of 3.25 or greater. Topics vary. May be repeated.

338-348 Tennessee Scholars Seminar (1,1,1) Sequence limited to and required of all Tennessee Scholars each year. May be repeated. Maximum 6 hours. Satisfactory/No Credit grading only.

356-368 Chancellor's Scholars Seminar (1, 1) Sequence limited to and required of all Chancellor's Scholars each year. May be repeated. Maximum 6 hours. Satisfactory/No Credit grading only.

418-428 Seminar on International Travel/Study/Work Overseas (1, 1) Seminar on selected issues concerning students and visiting scholars. Students must have participated in a study abroad program or completed a thesis. Students must be at least a junior and must have earned a minimum GPA of 3.25. Cooney, et al. May be repeated.

491 Honors: Foreign Study (3-15) Open to any undergraduate honors student. Proposals must be approved in advance. See the Director of University Honors for further information.

492 Honors: Off-Campus Study (3-15) Open to any undergraduate honors student. Proposals must be approved in advance. See the Director of University Honors for further information.

493 Honors: Independent Study (3-15) Open to any undergraduate honors student. Must be used by all University Honors Scholars preparing their senior projects. Proposals must be approved in advance. See the Director of University Honors for further information. Letter grade only.

**UNIVERSITY STUDIES (984)**

101 Freshman University Seminar (3) Introduction to the University as an adventure in personal growth and professional development. A/B/C/N grading. Open only to freshmen, transfer students, and re-entry students, or by permission of instructor.

310-320 Special Topics in University Studies (3) Lectures and seminars to approach issues transcending the boundaries of a single discipline. Topics may be initiated by faculty or students through arrangements with the University Studies Program. Taught by faculty from throughout the University (often team-taught). Extensive use of films, field trips, student discussion. May be repeated. Maximum 9 hours.

311 AIDS and Society (3) Speakers from across the sciences about scientific, social, medical, emotional and financial aspects of acquired immunodeficiency syndrome. Students are required to participate in some AIDS-related community activity and to describe that activity in writing.

321 Aging and Society (3) Multidisciplinary examination of the process of aging and of the medical and community resources for coping with its stresses and challenges.

322 Technology, Society and the Common Good (3) Explores philosophical and religious views with a commitment to stewardship of the planet and those with an antagonistic or neutral perception of the natural world. Students are presented in conjunction with cultural species extinctions caused by or related to their beliefs and values.

410-420 Advanced Topics in University Studies (3) Interdisciplinary research approaches to major issues transcending the boundaries of a single discipline. Topics may be initiated by faculty or students through arrangements with the University Studies Program. Taught by faculty from throughout the University (often team-taught). Extensive use of films, field trips, student discussion. May be repeated. Maximum: 9 hours.

**UBER STUDIES (985)**

200 Human-Environment Systems (3) (Same as Interior Design 200.)

250 Introduction to Urban Studies (3) Multidimensional nature of urban studies. Includes lectures by specialists presenting the approach of their disciplines to Urban Studies; application of general approaches to a specific issue; and collaborative teaching involving most faculty of Urban Studies.

231 Urban Politics and Process (3) (Same as Political Science 321.)

233 Behavioral Geography (3) (Same as Geography 323.)

250 Practicum in Urban Studies (3-6) Student and faculty member team, in conjunction with the East Tennessee Design Center, study a selected problem or aspect of the modern city.

261 The City in the United States (3) (Same as Planning 401.)

262 Survey of Planning (3) (Same as Planning 402.)

441 Urban Geography (3) (Same as Geography 441.)

450 Directed Field Work (3-15) Participant observation and directed field research. Project proposals are presented to Urban Studies students and faculty.

454 Cities and Urban American History (3) (Same as History 454.)

460 Senior Seminar (3) Variety of disciplines used to approach student selected problem. Prereq: 250, 350 and senior status. Student may not take 460 prior to having taken 450, except with prior permission of the Urban Studies Committee. Writing-emphasis course.

464 Urban Ecology (3) (Same as Sociology 464.)

491 Real Estate Finance and Investment Analysis (3) (Same as Finance 481.)

492 Urban Development and Finance (3) (Same as Finance 482.)
449 Laboratory in Physiology (2) Prereq or Coreq: 440 or 445.

450 Comparative Animal Behavior (3) Principles and methods of ethology with emphasis on ecological, developmental, physiological and evolutionary aspects. (Same as Psychology 450.)

459 Comparative Animal Behavior Laboratory (3) Introduction to observational and experimental research in ethology. Coreq: 450. (Same as Psychology 459.)

460 Evolution (3) Modern concepts of animal evolution. Prereq: Biology 220.

465 Human Genetics (3) Genetic and molecular principles and problems of human inheritance. Prereq: Biology 220.

470 Aquatic Ecology (3) Introduction to the physicochemical nature of inland waters with description of biotic communities and their interrelationships. Prereq: Chemistry 120-130 and Biology 230. 2 hours and 1 lab.

472 Arachnology (3) Biology of spiders, mites, scorpions and relatives. Prereq: 460 or 480. 2 hours and 1 lab.

473 Herpetology (3) Biology of amphibians and reptiles with emphasis on ecology and adaptive radiation. Prereq: Biology 230. 2 hours and 1 lab.

474 Ichthyology (4) Evolution, classification, collection and identification, distribution and biology of fishes with emphasis on freshwater fauna of Eastern North America. Prereq: Biology 230 or consent of instructor. 2 hours and 2 labs.

475 Ornithology (3) Behavior, ecology, populations, evolution and field identification of birds. Prereq: Biology 230. 2 hours and 1 lab.

476 Mammalogy (3) Evolution, classification, biogeography, ecology, behavior and functional anatomy of mammals. Prereq: Biology 230 or equivalent. 2 hours and 1 lab.

480 Physiology of Exercise (3) (Same as Physical Education 480.)

490 Comparative Endocrinology (3) Comparative analysis of physiology and morphology of endocrine glands in vertebrates and invertebrates, their role and interaction in maintenance of the organism and species. Prereq: 440 or equivalent.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

Bon Voyage!