Following certain course descriptions in this catalog are the designations: F, Sp, Su, A-O, A-E, E. These indicate the semester(s) offered: Fall, Spring, Summer, Alternate Odd Academic Years, Altainate Even Academic Years, or Every Semester in which a course is normally offered and are intended as an aide to students planning their programs of study.

ACCOUNTING (009)

201 Principles of Financial Accounting (3) Introduction to financial accounting theory and practice with emphasis on the role of financial information in business decisions. Prerequisite to all other courses in Accounting. E

202 Principles of Managerial Accounting (2) Introduction to managerial and cost accounting concepts with emphasis on uses of accounting data by managers in planning operations, controlling activities, and decision making. Prerequisite: 201. E

311 Accounting for Primary Business Activities (3) Study of financial accounting for the primary activities of a business corporation: primary financial statements; revenue-accounts receivable-cash cycle; inventories-accounts payable-cash cycle; cost of goods sold; debt and equity financing. Prerequisite: 202. Corequisite or Core: Finance 301. Corequisite: Business Administration 342.

321 Cost and Managerial Accounting (3) Analysis of costing for products, projects, and management control. Topics include cost behavior, cost prediction, budgeting, and responsibility accounting. Prerequisite: 202. Corequisite: Business Administration 342. E

341 Accounting Information Systems (3) Development and use of accounting information systems for collection, organization, and distribution of economic information about organizations for internal and external decision making. Prerequisite: 202; junior standing. Corequisite: Business Administration 342. Major exam may be given during the last class meetings. F, Sp

411 Financial Compliance, and Operational Auditing (3) Role of auditing in society from an international and external perspective, the IIA Code of Ethics, the IIA Standards for the Professional Practice of Internal Auditing, auditing methodology, role of internal control and statistical sampling in auditing, fraud auditing, operational auditing, compliance auditing, and applications of auditing procedures to specific transaction cycles. Prerequisite: 202.

414 Non Business Entities: Acquisitions; Mergers; and Foreign Operations (3) Investments; revenue recognition; accounting changes; error correction; statement of cash flows; introduction to leases, pensions, and deferred taxes; mergers; acquisitions; consolidated financial statements; foreign exchange and translation. Prerequisite: 311 with a C or better.

415 Governmental and Nonprofit Accounting (3) Advanced study of governmental and nonprofit entities. Governmental accounting principles, revenues and expenditures, budgeting, and financial reporting. Accounting principles and reporting models of nonprofit organizations. Integration of economic and social issues with reporting. Emphasis on governmental and nonprofit organizations. Prerequisite: 414 or permission of the instructor.

431 Federal Income Taxation (3) Fundamentals of gross income, deductions, credits, and tax determination. Introduction to taxation of corporations and partnerships. Prerequisite: 311 with a C or better, or consent of instructor. F, Sp

451 Operational Auditing and Consulting (3) Approaches auditors might use to evaluate an entity’s efficiency and effectiveness in a variety of settings and techniques auditors might use in consulting to provide the entity a competitive advantage.

ADVERTISING (012)

250 Advertising Principles (3) 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.

340 Advertising Research Methods (3) Secondary data and primary research techniques for advertising decisions. Prerequisite: 250 and Statistics 201.

350 Advertising Creative Strategy (3) Basic concepts of creative strategy with intensive practice in developing creative platforms, writing and designing advertisements, and judging creative work. Prerequisite: 250, Communications 100 or Speech Communication 100.

360 Advertising Media Strategy (3) Assessment of markets, vehicle audiences and mathematical techniques for advertising planning. Instruction in media planning, buying, and evaluation. Prerequisite: 340.

450 Advertising Management (3) Case-study approach to advertising decisions. Data analysis and interpretation, generating alternative strategies, oral and written presentation of recommendations. Prerequisite: 350 and 360.

470 Advertising Campaigns (3) Group-based development, execution and evaluation of an advertising campaign for a regional or national client. Prerequisite: 450.

480 Advertising Issues (3) Examination of the role of advertising in society and controversies surrounding economic, social, cultural and ethical aspects of advertising. Emphasis on written and oral exposition of different viewpoints.

490 Special Topics (3) Detailed study of a specialized area of advertising. Topics vary by semester and include advanced media strategy, advanced creative strategy, direct marketing, and multicultural advertising.

492 Advertising Practicum (1) Experience in a functional area of advertising. Ten hours laboratory each week. May be repeated once. Prerequisite: Progression as a major in the Department of Advertising. Satisfactory/No Credit grading only.

493 Independent Study (1-3) Individual study in a specialized area under the supervision of a faculty member. Prerequisite: Consent of instructor.

AFRICAN AND AFRICAN-AMERICAN STUDIES (022)

201 Introduction to African-American Studies (3) 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.

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.

233 Major Black Writers (3) (Same as English 233.)

235 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.

236 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 rise of nationalism, postcolonial 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.)

315 The African Diaspora (3) (Same as Anthropology 315.)

319 Caribbean Cultures and Societies (3) (Same as Anthropology 319 and Latin American Studies 319.)
African-American Women in American Society (3) Focuses on historical and contemporary social, economic and political factors in American society as they relate to the Black woman. (Same as Women's Studies 483.) Writing-emphasis course.

Agricultural and Extension Education (042) 201 Field Experience in Agricultural and Extension Education (1) Field observation/experience in potential agricultural and extension education career fields. Grade requirements: daily journal, formal written report, complete required hours, seminar. Prereq: Consent of instructor (may include off-campus experience). May be repeated if changing concentrations. E

211 Foundations of Agricultural and Extension Education (3) History and philosophy of agricultural education and extension education. Major areas of emphasis include the historical development of agricultural education in the public schools and the federal extension education system. Formal and non-formal methods of education used, audiences served, organizational structure, and programming emphasis will be studied by students. Foundation course for departmental majors and service course for those interested in related careers. SP

301 Non-Formal Youth Development Programs (1-2) Structured experience in administering, organizing, conducting, and evaluating youth education programs in agricultural and extension education. Prereq: Consent of instructor. F, Sp

345 Agricultural Education and Program Planning (3) Overview of the historical and philosophical aspects of agriculture education, the role of teacher and learner, emphasis on SAE, FFA, community service, and summer programs. Prereq: 201, 211 or consent of instructor. F, Sp

346 Instructional Strategies for Teaching Agricultural Education (3) Methods and techniques for teaching agriculture, preparing lesson plans and units of instruction, developing activities for agriculture programs, and utilization of resources, multimedia, and computer technology into instruction. Prereq: 201, 211, 345 or consent of instructor. F, Sp

420 Methods of Teaching Agricultural Mechanics (2) Methods for teaching high school agricultural education students. Special competencies for planning, conducting, and evaluating an agricultural mechanics program. Prereq: Biosystems Engineering Technology 202 or consent of instructor. F, Sp


429 History and Philosophy of African-American Education (3) Focuses on attempts by African-Americans to secure an education for themselves and their children from the era of slavery to the Brown decision in 1954. Examines black perceptions of the importance of education and special obstacles confronting African-Americans who seek education on the primary, secondary, college, or graduate level. Writing-emphasis course. (Same as History 421.)

421 Comparative Studies in African and African-American Societies (3) Comparative studies of African and African-American societies in such areas as education, religion, and social stratification. Includes the respective views African-Americans and Africans have of each other and the concept of Pan-Africanism. Writing-emphasis course. (Same as Social Work 384.)

423 Research Seminar in African-American Studies (3) Theories and methodology in the development of a research project of their choice in the field of African-American Studies. Prereq: 201-202 and consent of instructor. E

424 Comparative Poverty and Development (3) (Same as Sociology 442.)

433 Topics in Black Literature (3) (Same as English 443.)

445 The African-American Experience From the Colonial Period to the Present (3) (Same as History 445.)

450 Issues and Topics in African-American Studies (3) Topics vary, but include a variety of problems, issues, and individuals from the field of African-American Studies. May be repeated. Maximum 6 hours.

452 African-American and African Politics (3) (Same as Political Science 452.)

473 Black Male in American Society (3) Examines historical images, myths and stereotypes which have developed concerning African-American males in American society. Includes the impact of such critical factors as Black feminism, violence, concepts of masculinity, the family, white males, white females, homosexuality, nationalism, and athletics on African-American males in America.

480 African-American Communities in Urban America (3) Evaluates the benevolent and historical influence of three major institutions: the church, the family, and the school upon the African-American struggle to survive. Includes political, economic, and social factors utilized by Black people in developing coping strategies and mechanisms. Writing-emphasis course.

Agricultural Economics (047) 210 Introduction to Agricultural Economics (3) Application of economic principles of demand, supply, price determination, and market structure to agriculture, natural resources, rural community development, and international and global systems. Development of concepts of current issues and problems associated with production, marketing, consumption, resource use, and government intervention in the agricultural, rural, and international sectors. Prereq: Economics 201. F, Sp

212 The Agribusiness Firm (3) Introduction to agribusiness firm characteristics and decision-making. Overview of economic principles and the basic functions of management, planning, organizing, directing, and controlling. Specific topics include firm structure, forecasting, marketing and selling, budgeting, breakeven analysis, use of financial statements, capital investment, supervision, staffing, and evaluation. F, Sp

310 The Agricultural Employment Process (1) Career planning, job markets in the agricultural industry, and techniques to obtain employment including recruitment/selection processes and interviewing, and job offer evaluation/analysis. F

320 Agricultural Microeconomics (3) Application of microeconomics to agriculture. Production, consumption, firm behavior, and efficiency in the food and fiber industries. Prereq: Economics 201 and Agricultural Economics 212. F

342 Farm Business Management I (3) Principles and procedures for determining most profitable business decisions and systems of farm financial management for both traditional and nontraditional agricultural enterprises and businesses; nature of managerial processes; business records and their uses; budgeting; acquisition and management of capital; land, labor and machinery; farm business planning. Prereq: Economics 201 and Agricultural Economics 212. Sp

350 The Agricultural Marketing System (3) Survey of U.S. food and fiber marketing system; marketing functions; industry structure; market channels; marketing options of farmers; basic analysis of marketing problems. Prereq: Economics 201 and Agricultural Economics 212. F

355 Agribusiness Marketing and Professional Selling (3) Role of marketing in the agribusiness organization, planning marketing efforts, and the strategic selling process. Topics include identification of marketing opportunities, targeting, marketing mix, and personal selling in agribusiness. Prereq: Economics 201 and Agricultural Economics 212. F

356 Marketing Team Participation (1-2) Participation in the development of a total marketing plan for a product sold to or by farmers. Includes product identification, market research, and development of an action plan involving an extensive marketing analysis, financial analysis, and evaluation. Requires preparation of final plan for presentation in written, oral and visual formats. Prerequisite: completed in national competition during the National Agrimarketing Conference. May be repeated up to a maximum of 6 hours. Prereq: Consent of instructor. F, Sp

360 Rural Economic Development (3) Use of economic principles and analytical concepts in understanding the theory and process of rural economic development at the regional and subregional levels. Integrating historical and current information, student will explore the impetus of efficiency and equity as driving forces behind public sector and private sector initiatives to induce, manage, and forecast development. Prereq: Economics 201. F

410 Seminar in Agricultural Economics and Business (1) Restricted to Agricultural Economics and Business majors in their senior year. Practice of critical thinking, ethical behavior, teamwork, and conflict resolution within the context of agribusiness decision making. Analysis of economic principles of demand and supply, international trade, and financial intermediation. Prereq: Economics 201 and Agricultural Economics 212. F
402 International Agricultural Trade and Marketing (3)
Introduction to real and monetary aspects of international trade effect on agricultural commodity flows; partial equilibrium analysis of international trade in agricultural products; institutional aspects of international marketing of agricultural products. Prereq: 320 or consent of instructor. F

430 Agricultural Policy (3) Values, goals and policy process. Economic rationale and effects of policy. Historical development and current characteristics of commodity, credit, food, and trade policy. Prereq: 320 or consent of instructor. Sp

442 Agribusiness Management (3) Applications of advanced decision analysis concepts and tools to analyze management decision problems in farm and nonfarm settings. Case study work on strategic planning; assessing cost structure using budgeting and break-even analysis; evaluating profitability, liquidity, and solvency using financial statements; analyzing investments using capital budgeting; etc. Prereq: 342 or consent of instructor. F

450 Agricultural Industry Analysis and Forecasting (3) Analytical tools for decision making in the agricultural sector; analysis of commodity supply and demand conditions; economic modeling; market forecasting; analysis of temporal and spatial patterns. Prereq: 320 and Statistics 201 or consent of instructor. F

470 Natural Resource Economics (3) Nature of natural resources; economic efficiency as a basis for natural resource use; externalities in natural resource use; factors influencing environmental quality; alternative public policy tools for influencing natural resource use; improving environmental quality. Prereq: Economics 201, Sp

492 Off-Campus Internship (1-3) Pre-approved supervised work experience with firm or organization in the field. May be repeated for a different experience up to a maximum of 6 hours. Prereq: Junior standing or consent of advisor. S/N/C, E

493 Independent Study (1-3) Directed individual or team research and report writing. Special courses in specific topics must be arranged with instructor before registering. May be repeated up to a maximum of 6 hours. Maximum 6 hours. Prereq: Junior standing. E

Agriculture and Natural Resources (088)
100 Orientation to Studies in Agriculture and Natural Resources (1) Orientation to academic advising and procedures. Information about the College will be emphasized. Various invited guests will review University resources available to help students succeed at their studies. Discussion and advisor-student interactions are included to discuss the CASNR experience. Enrollment is restricted to freshmen and transfer students. Grading is S/N/C. F

290 Computer Applications to Problem Solving (3) Introduction to real and monetary aspects of international trade effect on agricultural commodity flows; partial equilibrium analysis of international trade in agricultural products; institutional aspects of international marketing of agricultural products. Prereq: 320 or consent of instructor. Sp

491 International Experience in Agriculture and Natural Resources (1-15) Credit for formalized international experiences related to agricultural sciences and natural resources. Determination of credit based on nature of the proposed experience. Student should discuss the opportunity with their faculty advisor prior to the trip to determine eligibility and procedures in, and information about the College will be emphasized. Prereq: Junior standing or consent of advisor. S/N/C, E

497 Honors Independent Project (1-6) For students participating in the CASNR Honors Research and Creative Achievements Program. Consists of independent work with a faculty mentor. Prereq: Participation in the CASNR Honors Program. Sp

498 Honors Presentation (1) For students participating in the CASNR Honors Program. Final written report and oral presentation of the honors project. Prereq: Participation in the CASNR Honors Program. F

AIR FORCE AEROSPACE STUDIES (094)
101-102 The Air Force Today (1,1) AS100 is a survey course that examines the organizational structure and mission of the Air Force; leadership and professionalism; and includes an introduction to communicative skills. A weekly Leadership Laboratory (LLAB) consisting of Air Force customs and courtesies, Air Force environment, physical fitness, and drill and ceremonies is mandatory.
103-104 Leadership Laboratory (1,1) Leadership Laboratory includes a study of Air Force customs and courtesies, drill and ceremonies, and giving military commands. Students are expected to participate in all aspects of the preceding skills; studying the environment of an Air Force officer; and learning about opportunities available to commissioned officers. A weekly Leadership Laboratory (LLAB) consisting of Air Force customs and courtesies, Air Force environment, drill and ceremonies, and field training orientation is mandatory.
201-202 The Development of Air Power (1,1) AS200 focuses on the development of Air power from its earliest beginnings through two world wars; the evolution of air power concepts and doctrine; and a assessment of communicative skills. A weekly Leadership Laboratory (LLAB) consisting of Air Force customs and courtesies, Air Force environment, drill and ceremonies, and field training orientation is mandatory.
203-204 Leadership Laboratory (1,1) Leadership Laboratory includes a study of Air Force customs and courtesies, drill and ceremonies, and giving military commands; instructing, correcting, and evaluating the preceding skills; studying the environment of an Air Force officer; and learning about opportunities available to commissioned officers. A weekly Leadership Laboratory (LLAB) consisting of Air Force customs and courtesies, Air Force environment, drill and ceremonies, and field training orientation is mandatory.
205 Field Training (Academic Program) (1,4) Role of United States Air Force in contemporary world affairs; its organization and mission; various component forces of U.S. military power; organization of America’s defense structure, policies of major powers, and elements and processes in making of defense policy. Conducted at Field Training bases throughout the United States. Open only to two-year program applicants.
301-302 Air Force Leadership and Management (3,3) AS 300 is a study of leadership and quality management fundamentals, professional knowledge, leadership ethics, and communicative skills required of an Air Force officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory weekly Leadership Laboratory (LLAB) provides advanced leadership experiences in office-type activities and gives students the opportunity to apply leadership and management principles to this course. A weekly Leadership Laboratory (LLAB) providing advanced leadership experiences in office-type activities and gives students the opportunity to apply leadership and management principles to this course.
303-304 Leadership Laboratory (0.5) Leadership Laboratory consists of activities classified as advanced leadership experiences. They involve planning, organizing, staffing, coordinating, and controlling. The exercises are primarily scenario exercises involving case studies of the cadet corps; preparation and presentation of briefings and other oral and written communications; and providing interviews, guidance, and information which will increase the understanding, motivation, and performance of other cadets.

AMERICAN STUDIES (099)
310 Introduction to American Studies (3) Explores dynamics and nature of the culture(s) of the United States through interdisciplinary study and interpretation. Consideration of both “mainstream” and “minority” cultures. Writing emphasis course.
312 Popular Culture and American Politics (3) (Same as Political Science 312.)
320 American Cultures (3) (Same as Anthropology 320.)
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.)
355 Religion and Culture in the United States (3) (Same as Religious Studies 355.)
356 The 1960s in America (3) (Same as History 356.)
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 Behavior (3) (Same as Political Science 420.)
423 Geography of American Popular Culture (3) (Same as Geography 423.)
442 American Humor (3) (Same as English 442.)
450 Seminar in American Studies (3) Intensive study of a major issue in American Studies scholarship.
456 History of Sports in the United States (3) (Same as History 456.)
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)
160 Introduction to Animal Science (3) Preparation of academic plans and career direction. Introduction to structure and production principles of the food animal and horse industries. Overview of companion and alternative livestock. Market classes and grades of cattle, poultry and poultry products, lamb and wool, and swine. 3 labs. F, Sp
220 Anatomy and Physiology of Farm Animals (3) Skeletal and joint, muscles, blood and microcirculation, the nervous, endocrine, cardiovascular, respiratory, and digestive systems; demonstrations of physical-chemical phenomena. Prereq: Biology 120 or 130. 2 hours and 1 lab. F
Courses of Instruction

280 Biotechnology and Management Practices in Animal Production (3) Exposure to current animal agriculture management practices and biotechnology techniques as they affect beef, dairy, horse, poultry, sheep and swine industries. Includes animal behavior, restraint and welfare, computer applications, nutrients and nutrient management, health and disease management, animal safety, reproduction, health and well being, and emerging technologies and opportunities in animal agriculture. 2-3 hour labs. F

285 Horse Handling and Care (3) Proper procedures for horse-human interactions, recommended management procedures for horse care. The basic behavioral characteristics of the horse, an understanding of his physical and mental parameters and their use in horse-human communication. Interactions including imprinting, haltering, halter training, lodging, long-line driving, bridle, bitting, saddling, body coaching and teaching to guide. Basic care includes feed selection and management, postnatal care, restraint, foot care, dental care, grooming, loading and trailing, stall maintenance, internal and external parasite control, exercising, identification techniques, routine vaccinations and first aid. Safety for both horse and handler will be emphasized. 3-2-3 hours lab. F

302 The Physiology of Reproduction and Lactation (3) Biology of sex and sexual differentiation, functional anatomy of male and female, reproduction and lactation, gametogenesis, sexual cycle, pregnancy, and ovulation. Reproductive biology of reproduction and lactation, sex cycles, folliculogenesis, ovulation, spermatogenesis, fertilization, embryonic development, deciduomata, involution, involution and maintenance of the dry period, artificial control of reproduction and lactation. Prereq: Biology 120 or 130. 2 hours and 1 lab. Sp (Same as BCMB 322.)

330 Comparative Animal Nutrition (3) Nomenclature, structures, functions, utilization, and deficiency symptoms of essential nutrients in carnivores, omnivores and herbivores. Prereq: Animal Science 220, Chemistry 110 or Chemistry 130. 3 hours per week. F

340 Principles of Animal Breeding (3) Genetic and environmental bases of animal variation. Selection and mating systems as mechanisms of genetic change. Planning breeding programs for economically important domestic species. 2 hours and 1 lab. F


362 Dairy Cattle Evaluation (2) Comparative judging, oral reasons, breed classification programs, economic evaluation and value of confinement traits. Prereq: 260. 2 labs. Sp

364 Horse Evaluation (2) Evaluation of horses for soundness and functional efficiency and the relationship of form to function in various breeds of horses. 2 labs. Sp

380 Animal Health Management (3) Characteristics, symptoms, prevention of common infectious diseases and parasites. Immunization, health regulations and herd health programs for all farm livestock species and poultry. Prereq: AS220. 2 hours and 1 lab. F

381 Animal Nutrition and Production Systems (3) Fundamentals of production management systems with an emphasis on nutrition in beef, dairy, pork, and poultry programs. Application of principles of nutrition, breeding, physiology, and marketing into enterprise systems. Development of information resources, enterprise evaluation, and comparison of production systems. 2 hours and 1 lab. No credit for majors. F

395 Careers Seminar (1) Preparing students for career opportunities in animal agriculture including both industry and academic advancement. Topics will include resume preparation, interview skills, internship opportunities, and web-based employment search guides. Prereq: Junior standing, F.

420 Advanced Reproduction (3) Collection, evaluation, and preservation of ova, spermatozoa and embryos; application of methods of natural breeding and techniques of artificial insemination, and their use in horses, dairy, beef, sheep and swine industries. Includes animal behavior, restraint and welfare, computer applications, nutrients and nutrient management, food safety and diet evaluation; pregnancy determination; gestation and parturition; infertility; recent advances in theriogenology. Prereq: 320. 2 hours and 2 labs. F

430 Nutrient Evaluation and Ration Formulation (3) Ration nutrient analysis and formulation for beef and dairy cattle, sheep, swine, poultry, laboratory, zoo and companion animals. Focus on various feeding environments and application of feed formulas and ration formulations to meet specific animal needs. Prereq: Animal Science 330 and introductory computer course. 2 hours and 1 lab. Sp

441 Advanced Beef Cattle, Dairy Cattle, Horse, Poultry, Sheep and Swine Evaluation and Judging (3) Evaluation and selection and presentation of beef classes for beef shows, dairy cattle, beef shows, dairy shows, horse shows, and poultry shows. Prereq: Consent of instructor. 2 labs. F

481 Beef 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 response and economic returns. Prereq: Completion of Animal Science sophomore and junior core courses or consent of instructor. 2 hours and 1 lab. F

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 response and economic returns. Prereq: Completion of Animal Science sophomore and junior core courses. 2 hours and 1 lab. Sp

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 programs. Management evaluated in terms of production response and economic returns. Prereq: Completion of Animal Science sophomore and junior core courses. 2 hours and 1 lab. Sp

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 response and economic returns. Prereq: Completion of Animal Science sophomore and junior core courses. 2 hours and 1 lab. F

485 Horse Production and Management (3) Integration of principles of nutrition, breeding, physiology and ethology into complete production and management programs. Types of enterprises, management of feed and water resources, first aid, breeding and foaling, farm structures and equipment. 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 - AE

492 Animal Science Field Study (1-6) Off-campus work experience approved by the department. Objective is to complement traditional classroom activities and give the student an opportunity to experience the animal industry. Students must submit official formal approval form prior to registration. The student will be evaluated on knowledge and skills and must submit a written summary of the experience. AE

493 Independent Study in Animal Science (1-3) Approved supervised study in areas not formally presented in a course offered in the department. Written proposal of the study, approval of the Associate Chair, and consent of the 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 demonstration. Prereq: Senior standing and consent of the Associate Chair. E

495 Ethics in Animal Agriculture (1) Discussion and presentations on issues related to ethics in animal research and industry. Prereq: Senior standing. F, Sp

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 clinicians in the College of Veterinary Medicine as they carry out day to day activities in the large and/or small animal clinics. One lab. Sp

ANTHROPOLOGY (122)

110 Human Origins (3) Survey of humanity’s background, fossil primates, fossil human remains, and living races of humankind. 120 Prehistoric Archaeology (3) Introduction to methods and techniques used to identify and date archaeological cultures, reconstruct past lifeways and describe cultural evolution. Overview of the prehistory of Africa, western Europe, southwest Asia, and the Americas from earliest dated human cultures to rise of complex societies. 130 Cultural Anthropology (3) Major concepts and methods in the study of culture; survey of cross-cultural similarities and differences in subsistence, social organization, economic, political, and religious institutions, languages, and art and technology. Contributions of anthropology to resolving contemporary human problems. 210 Principles of Biological Anthropology (3) Mechanisms of biological evolution and adaptation in living and prehistoric humans. Prereq: 110. 302 Anthropology of Religion (3) (Same as Religious Studies 302.)

305 Evolution and Society (3) (Same as Ecology and Evolutionary Biology 305.)

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 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, culture 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.

315 The African Diaspora (3) An overview of anthropological perspectives on people of African descent and the impact of an African presence on societies in the Americas. The sociocultural experiences of U.S. African Americans and their counterparts elsewhere in the hemisphere are situated in the context of a broader diaspora. Prereq: 130 or consent of instructor. Writing emphasis course. (Same as African and African-American Studies 315.)

316 Peoples and Cultures of South America (3) An introduction to contemporary analysis and debate on South America that places the concept “culture” in historical context and challenges the anthropological notion of “people” within the complexity of indigenous and black social formations. Writing emphasis course. (Same as Latin American Studies 316.)
430 Fieldwork in Anthropology (3-9) Practicum work in archaeological data recovery and analytical techniques. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

431 Ethnographic Research (3) Conceptual and practical exploration of methods and techniques cultural anthropologists use in fieldwork. Prereq: 120 or consent of instructor.

435 Historical Archaeology Laboratory (3) Laboratory procedures for the processing, identification, and interpretation of artifacts from historical sites. Artifactual material from historic East Tennessee sites will be used for class projects. Prereq: 361 recommended.

440 Cultural Ecology (3) Concepts and methods in studying dynamic systems; emphasis on prehistoric and present day cultures and their environments. Topics include ecological theory, methods of analysis, and review of case study examples. Prereq: 120, 130, 410, or consent of instructor.

450 Current Trends in Anthropology (3) Analytical, integrative review of current directions of research and theory in anthropology. May be repeated. Maximum 6 hours.

457 Senior Honors in Anthropology (3) Research and writing of the senior honors thesis. Open to students with overall GPA of 3.2 and an Anthropology GPA of 3.5 who have completed Anthropology 357 with a grade of B or better.

459 Selected Topics in Anthropology (3) Theoretical issues in anthropology for undergraduate students. Topics may include practical experience or laboratory study of anthropological materials. May be repeated. Maximum 6 hours. Prereq: Either 110, 120, or consent of instructor.

462 Early European Prehistory (3) Origin and evolution of human culture in Europe through the beginnings of settled life. Primary focus on Paleolithic/Mesolithic chronology and lifeways. Prereq: 120 or consent of instructor. Writing-emphasis course.

463 Rise of Complex Civilizations (3) Development of complex societies in Old World from origins of agricultural economics to rise of States. Focus on Mesolithic, Neolithic, and Metal Age lifeways in Africa, Europe, and Asia. Prereq: 120 or consent of instructor. Writing-emphasis course.

464 Principles of Zoarchaeology (3) Basic osteological studies of major vertebrate groups, with emphasis on the aboriginal’s use of animals in subsistence and culture. Identification and interpretation of archaeologically derived molluscan and vertebrate remains, with introduction to laboratory use of comparative collections. Prereq: 120 or consent of instructor.

465 Urban Archaeology (3) Field and laboratory identification and interpretation of archaeological remains on historic urban sites in the United States. Course content includes examples from the field and laboratory research on urban sites in East Tennessee. Prereq: 361 recommended.

480 Human Osteology (4) Intensive examination of the human skeleton. Prereq: 110 or consent of instructor. 3 hours 1 hour lab.

481 Museology I: Museums, Purpose and Function (3) (Same as Art 481.)

482 Museology II: Exhibition Planning and Installation (3) (Same as Art 482.)

484 Museology III: Field Projects (1-12) (Same as Art 484.)

485 Oral Biology (4) Intense examination of human dentition and oral skeletal structures including dento-facial embryology/growth, histology, gross tooth morphology and pathology. Prereq: Anthropology 480 or consent of instructor.

490 Primate Evolution (3) Living and fossil primate taxonomy, ecology, and comparative anatomy. Survey of primate fossil record with emphasis on the origin of major primate lineages. Prereq: 110 or consent of instructor.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

494 Primate Behavior (3) Social organization and behavior of selected primates including group composition, size, and structure; patterns of mating; other social interactions; communication; and cultural behavior. Application of primate studies to human ethology. Prereq: 110 or consent of instructor.

495 Human Paleontology (4) Intensive survey of the human fossil record from the earliest hominid remains to the earliest origins of modern human form. Prereq: 110 or consent of instructor.

496 Biology of Human Variability (3) Introduction to human populations; human adaptation, biological features of major human races, relationships of major groups to one another. Prereq: 110 or consent of instructor. (Same as African and African-American Studies 496.)

ARABIC (127)

121-122 Elementary Modern Arabic I, II (5,5) Same as Asian Studies 121-122.

221-222 Intermediate Modern Arabic I, II (5,5) Same as Asian Studies 221-222.

ARCHITECTURE (133)

101 Introduction to the Built Environment (3) Scope and definition of built environment and its relationship to contemporary society, building industry, and allied design professions. Architectural design as a creative process. Orientation to courses and programs of the school. Coreq: 171 F.


111 Architecture and the Built Environment (3) An introduction to architecture and the built environment for non-architecture majors. Significance of our surroundings, forces that create them, Creative aspects of design. Survey of examples from local to global. Strategies for individual and collective involvement.

121 Drawing and Perception (2) Exploration of drawing as a means of visual thinking and method of communication, addressing perceptual phenomenon. Exploration of different media, concentrating on freehand drawing. Includes line drawing, tone, shade, shadow, depth cues. Compositional principles will be introduced. Drawings based on observation, including figure drawing and campus visits. Coreq: 171 F.


180 Introduction to Architecture (2) Introduction to architecture as an intellectual discipline. Design as a creative endeavor central to the discipline and its profession.

181 Introduction to Graphic Skills (4) Introduction to freehand drawing and orthographic techniques emphasizing visualization and simulation. The work will be explored and developed in the studio (4 credit hour studio).

182 Introduction to Basic Design (6) Introduction to basic design principles in both two and three dimensions. The work will be explored in a seminar format and developed in the studio (1 credit hour seminar and 5 credit hour studio).
211 History and Theory of Architecture I (3) Architectural thought and ideas of building and community form. Ancient through High Renaissance in Italy, France and Spain.

212 History and Theory of Architecture II (3) Architectural thought and ideas of building and community form. English Renaissance, late Renaissance in Italy, France and Spain through the mid-twentieth century. Prereq: 211.


231 Computer Applications in Design I (3) Introduction to computer hardware and software, and their application in architecture. Emphasis on learning how the computer can assist in the design process by modeling, visualizing and analyzing building designs. Introduction to drafting, three-dimensional modeling, and desktop publishing.


271 Architectural Design I (6) Introduction to contextual determinants in architectural design. Role of the city and the landscape in architectural design. Methods of analyzing form in determining design strategies. Representational skills developed including drawing, diagramming and modeling techniques. Prereq: 172. F

272 Architectural Design II (6) Studies in architectural space. The role of function, habitation, movement, structure and form as determinants of spatial form explored through a series of design projects ranging in scale from furniture to dwellings. Development of design processes, including analytical skills, diagramming, and determining design organizational strategies. Use of computer aided visualization techniques. Prereq: 271. Sp

281 Principles of Architectural Form (6) Principles of architectural form emphasizing building configuration and order. Design of simple buildings which explore possibilities of site, use, shape materials and color. (1 credit hour seminar and 5 credit hours studio). Prereq: 182 or equivalent.

282 Principles of Architectural Design (6) Principles of architectural design emphasizing site, function, circulation, structure, technology, context and expression of building (1 credit hour seminar and 5 credit hours studio). Prereq: 281.


332 Architectural Structures II (4) Continuation of analysis and design of simple structures of steel, wood and concrete based upon specific loading requirements. Use of construction and building codes, handbooks and design tables - selection of structural members. Prereq: 331. Sp

334 Advanced Architectural Structures (3) Philosophical development of structural design in relation to materials and form. Advanced mathematical and experimental analysis of structures, including use of computer programs. Prereq: 323 or equivalent.

335 Structures in Architecture I (3) Introduction to the structural properties of materials, fracture and simple statically determinant assemblies of buildings. Prereq: 180 and M. Arch. Admission.

336 Structures in Architecture II (3) Continuation of analysis and design of simple structures in wood, steel and concrete based upon building codes, loading tables and handbooks for selection of structural members. Prereq: 335 or special permission.

341 Environmental Control Systems I (4) Heating, ventilating, and air-conditioning systems, including passive and active solar energy systems. Plumbing and fire protection systems. Prereq: 231 and 232. F


345 Principles of Environmental Control I (3) Introduction to heating, ventilating, air-conditioning, solar energy, plumbing and fire-protection systems. Prereq: 180 and M. Arch Admission.

346 Principles of Environmental Control II (3) Introduction to heating, ventilating, air-conditioning, solar energy, plumbing and fire-protection systems. Prereq: 180 and M. Arch Admission.


401 Architectural History/Theory I (3) Architectural History/Theory I (3) Survey of architectural history and theory from earliest beginnings to about 1600 CE in Europe. Includes, for example, the development of structural and theoretical ideas, building forms, and urban patterns in cultural and historical context. Prereq: M. Arch admission or consent of instructor. Open to undergraduates with consent of instructor. Sp

403 Introduction to Preservation (3) History, theory, and legal aspects of architectural preservation and restoration.

404 Preservation Technology (3) Techniques of preservation: methods of analysis, history of materials and technology used in old buildings. Prereq: 403.

405 Descriptive Analysis of Historic Buildings (3) Identification and analysis of characteristic elements of buildings from various architectural periods, with emphasis on American architecture. Survey techniques.

406 Ideas in Architecture (3) Historical and critical review of the major ideas of architecture through the ages. Open to all students.

410 History and Theory of Urban Form (3) Patterns of community development. Selected historical and contemporary examples. Examination of exemplary design approaches examined through lectures, readings, essays, and sketch studies including historical changes in urban form and design.

412 Non-Western and Indigenous Architecture (3) Building forms and climatic and cultural adaptability, and economic level, as designed by anonymous builders. Examples from prehistoric times to the present including the fertile Crescent; the Indus Valley; Hindu; Buddhist and Mughal architecture of India, China, and Japan.

413 Tennessee Architecture (3) History of settlement patterns and building in Tennessee. Selected examples examined through reading assignments, lectures, discussion, and field trips. Historical research using primary material.

414 History of Architectural Technology (3) Building materials and construction techniques from antiquity to the present.

415 Medieval Architecture (3) History of architecture from the fall of Rome to the beginning of the Renaissance. (Same as Medieval Studies 415.)

417 The International Style (3) A survey of architecture of the early modern movement, primarily in Europe and America, covering the years 1910 to 1940.

419 American Architecture I (3) Development of North American architecture from its origins 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) Intellectual, sociocultural, and geographical influences which provide the theoretical basis for design throughout history. Selected examples of landscape architecture analyzed in terms of design.

422 Modern European Architecture (3) Twentieth century architecture in Russia, Czechoslovakia, Poland, Hungary, East Germany, Rumania, Bulgaria, Yugoslavia.

425 Special Topics in Architecture (1-6) Faculty initiated courses. Topics vary. May be repeated. Maximum credit 12 hours. Prereq: consent of instructor. E

431 Structural and Mechanical Applications (3) Case study analysis and selection of structural and mechanical systems, investigating the conceptual integration of technical information into a unified design solution. Prereq: 332, 342, Coreq: 471. F

432 Computer Applications in Design I (3) Advanced computer aided design using three-dimensional modeling software. Design analysis using computer animation, rendering techniques, visualization, and video. Prereq: 231. Sp

433 Computer Applications in Design II (3) Advanced computer aided design using three-dimensional modeling and technical analysis using computers to augment building design. Independent studies under faculty direction. Prereq: Consent of instructor. Sp

443 Building Energy Analysis (3) Balancing heat flow through external skin of residential and small and 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 analysis 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. Exploration of real estate. Open to all students.


472 Architectural 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) Photography as a design, research, and presentation medium. Application of photographic techniques, printing and processing. Color, black and white.

480 Comprehensive Design Project I (3) Preparation and Programming for Projects. (3) Formation of project statement, documentation and analysis of project data. Preparation of background and program information. Goal and concepts set forth. To be taken in the semester preceding 482.

481 Advanced Architectural Design Topics (6) Faculty initiated design projects. Advanced architectural topics not covered under 483, 484, 485, 486, or 489. Prereq: 471. F
482 Self-directed Design Project (6) Student-selected project under faculty direction. Exploration of design hypothesis that informs the character of a substantial building or building complex. Completed projects will address issues of environment, structure, enclosure, use and ethical consideration of design appropriateness. Design is expected to stand up to scrutiny of the strengths and weaknesses regarding the integration of economy of means, durability, validity for stipulated use, quality of cultural expression, and character of setting. Prereq: 480, satisfactory completion of a self-directed project. Individual program for that project, and satisfactory completion of all design courses.

483 Urban Design (6) Urban design projects responding to specific community conditions. Exploration of urban issues in connection with understanding the architecture of the city. Prereq: 471. 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: 471 and 463 or consent of instructor. F

486 Design of Sustainable Architecture (6) Architectural design studio emphasizing concern for the environment, consideration of energy conservation techniques, and use of renewable resources. Prereq: 471. F

489 Structural Innovations (6) Building design with innovative structural configuration and technology. Exploration of new materials, detailing, and methods in building construction. Prereq: 471. F

491 Foreign Study (1-15) Research and design projects conducted in various locations abroad. F, Su

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 in Architecture (1-6) Individual studies and projects under faculty direction. Credit adjusted to complexity and level of effort required. May be repeated once. Prereq: consent of dean. E

494 Foreign Studies Sketchbook (1-3) Investigations of historic urban fabric and architecture in various locations abroad. Analysis and sketch records in sketchbook format required.

496 Design Studies in Krakow (6) Studio meets in Krakow, Poland. Design studies responding to specific community conditions in an European city.

497 Sketchbook Study of Architecture in Central Europe (1-6) Exploration of graphic design elements in sketchbook format required. Lectures and field trips related to Krakowian, Polish, and European architecture and urban traditions.

498 Fine Art Studies in Krakow (3) Studio meets in Krakow, Poland. Fine arts investigations related to architectural design.

ART (140)

101 Studio Fundamentals: Drawing and Design (2) Introduction to basic drawing media, concepts and techniques 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.

191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated, medium may not be repeated. Maximum 12 hours.

299 Special Topics (3) Student or instructor-initiated course offered at convenience of department. 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: Art History 172 and 173, all with a grade of C or better. Prereq/Coreq: Art 295 with a grade of C or better. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

491 Visiting Artist Seminar (2) Seminar on contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 8 hours.

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

494 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

495 Visiting Artist Seminar (2) Study and discussion of contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 8 hours.

500 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

ART CERAMICS (135)

191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated, medium may not be repeated. Maximum 12 hours.

221 Ceramics: Handbuilding I (3) Introduction to handbuilding, glazing, clay preparation and firing. Prereq: Art 101 and 103.

222 Ceramics: Throwing I (3) Introduction to throwing, glazing, clay preparation and firing. Prereq: Art 101 and 103.

225 Portfolio Practicum - Handbuilding (3) Intense post-introductory studio experience to develop work for application to Ceramics Portfolio Review 320. Art majors only. Not repeatable for credit. Prereq: 221, 222, and consent of Department.

226 Portfolio Practicum - Throwing (3) Intense post-introductory studio experience to develop work for application to Ceramics Portfolio Review 320. Art majors only. Not repeatable for credit. Prereq: 221, 222, and consent of Department.

229 Ceramics: Special Topics (3) Student or instructor initiated courses to be offered at convenience of department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

320 Ceramics: Portfolio Review (0) Review of prior work in ceramics. Successful completion required prior to registration for junior and senior courses. Prereq: Art 101 and 103, Art History 172 and 173, Ceramics 221, all with a grade of C or better. Prereq/Coreq: Art 295 with a grade of C or better. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

321 Ceramics: Handbuilding II (3) Continued investigation of handbuilding with emphasis on the development of individual ideas and expression. Prereq: 320.

322 Ceramics: Throwing II (3) Continued investigation of throwing with emphasis on the development of individual ideas and expression. Prereq: 320.


422 Ceramics: Advanced Throwing (4) Continued, in depth investigation of ceramic form with an emphasis on the development of individual direction. Prereq: 321 and 322. May be repeated. Maximum 12 hours.

424 Ceramics: Clays and Glazes (3) Clay chemistry, clay bodies, glaze theory, and calculation. Formulating, mixing and testing of clay bodies and glaze formulas. Prereq: Art History 172 and 173, all with a grade of C or better. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

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

494 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

495 Visiting Artist Seminar (2) Study and discussion of contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 8 hours.

ART DESIGN/GRAPHIC (136)

151 Graphic Design History (3) Major movements and pivotal artists/designers and directors, 1850 to the present, and their impact on current graphic design trends. (Cannot be used to fulfill art history requirement.)

191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated, medium may not be repeated. Maximum 12 hours.

251 Beginning Graphic Design I (3) Introduction to the elements and principles of graphic design including typography, layout, Survey of graphic design tools, materials, and processes. May be repeated. Maximum 6 hours. Prereq: Art 101 and 103. Art Design/Graphic 151, all with a grade of C or better.

252 Beginning Graphic Design II (3) Survey of graphic design from concept through production. Emphasis on visual problem-solving. May be repeated. Maximum 6 hours. Prereq: 251 with a grade of C or better.

254 Black and White Illustration (3) Black and white media and production techniques as applied to product and editorial illustration. Prereq: Art 101.

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

259 Special Topics: Graphic Design (3) Student or instructor initiated course offered at discretion of department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

350 Graphic Design Portfolio Review (0) Review of prior work in graphic design. Successful completion required prior to registration for junior and senior courses. Prereq: Art History 172 and 173 with a grade of C or better. Prereq: Coreq: Art Design/Graphic 252. May be repeated. Satisfactory/No credit only.

351 Intermediate Graphic Design I (3) Concept development and the study of graphic design elements including typography and imagery and their interaction with any portfolio review. Prereq: Coreq: Art Design/Graphic 350, 356.

352 Intermediate Graphic Design II (3) Investigation of sign, symbols, marks and identity systems. Prereq: Art Design/Graphic 351 with a grade of C or better.

354 Color Illustration (3) Flat and process color media and production techniques as applied to product and editorial illustration. Prereq: 254 and successful completion of any portfolio review.

356 Graphic Design Production (3) Traditional and computer-generated techniques for the production of print media in graphic design. Introduction to computer systems, software and techniques.

396 Airbrush Painting (3) Techniques of airbrush painting; skills and creative applications emphasized. Prereq: Art Drawing 211.

405 Computer Enhanced Graphic Design (3) Exploration of new technologies and their affect on graphic design. Prereq: 351, 356 with a grade of C or better and consent of instructor. May be repeated. Maximum 6 hours.
ART DRAWING (137)

191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated, medium 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.

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: Consent of instructor. May be repeated. Maximum 12 hours.

311 Drawing III (4) Development of personal drawing techniques and concepts through class problems. Prereq: 212 and 312 or consent of instructor. May be repeated, Maximum 8 hours. Total of 8 hours required for students in the Drawing concentration.

312 Drawing Portfolio Review (6) Review of prior work in drawing. Successful completion required prior to registration for junior and senior courses. Prereq: Art History 172 and 173 with a grade of C or better. Satisfaction/No credit only.

411 Drawing IV (6) Individualized pursuit of personal drawing techniques and concepts, supplemented by individual and group critiques and weekly life drawing sessions. Prereq: 8 hours of Art Drawing 311 with a grade of C or better or consent of instructor. May be repeated. Medium 6 hours. Total of 12 hours required for students in the Drawing concentration.

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

493 Independent Study (1-15) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

495 Visiting Artist Seminar (2) Study and discussion of contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 8 hours.

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. F, Sp, Su.

302 Multiculturalism in Visual Art (3) Selected cognitive and perceptual experiences involving multicultural visual art. Prereq: Permission of instructor. Sp.

311 Concepts of Sculpture and Crafts (3) Processes in teaching of sculpture and crafts including pertinent literature and research. Prereq: 301. F

310 Field Experience (1) Tasks related to teaching and to teacher roles. May be repeated, Maximum 2 hours. Prereq: Admission to Teacher Education Program. Satisfactory/No credit only. F, Sp

400 Curriculum Planning and Teaching Strategies (3) Program development, instructional methods, professional literature, contemporary issues, simulation and micro teaching situations. Prereq: 301 and admission to Teacher Education Program.

ART HISTORY (139)

162 Art of Africa, Oceania, and Pre-Columbian America (3) Survey of the traditional arts of the cultures of the Americas (focusing primarily on the period before the European conquest); Sculpture, painting, pottery, textiles, architecture and human adornment will all be examined.

172 Western Art (3) Major monuments in Western art with emphasis on Europe from prehistory through the Middle Ages. Two-hour lecture and one-hour discussion each week.

173 Western Art (3) Major monuments in the history of European and American Art from the Renaissance to the present. Two-hour lecture and one-hour discussion section each week.

177 Honors: Western Art I (3) Consent of Department required. Major monuments in Western art with emphasis on Europe from prehistory through the Middle Ages. Study grounded in reading, writing, and discussion. Writing-emphasis course.

183 Asian Art (3) Selected works of painting, sculpture, architecture, and other forms in India, China, Japan, and to a lesser extent, Korea and Southeast Asia from antiquity through the 20th century. Prereq: Art History 172 and 173, or consent of instructor. Writing-emphasis course.

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.

376 Seminar in Art History (3) Variable theme; emphasis on methodology and skills in writing. Required for Art History majors. Prereq: Junior or senior standing and completion of at least 12 hours in art history, or consent of instructor. May be repeated with consent of instructor for a maximum of 6 hours. Writing-emphasis course.

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 aesthetic and social uses of photography as a medium for artistic expression.

411 Art of South and Southeast Asia (3) A survey of the art and architecture of the Indian subcontinent and Southeast Asia from 2000 B.C. to the 20th century. The major achievements of each period are examined in relation to their religious, political, and social contexts. Writing emphasis course.

415 Art of China (3) A survey of the art and architecture of China from the neolithic period to the 20th century. The major achievements of each period are examined in relation to their religious, political, and social contexts. Writing emphasis course.

419 Art of Japan (3) A survey of the art and architecture of Japan from the neolithic period to the 20th century. The major achievements of each period are examined in relation to their religious, political, and social contexts. Writing emphasis course.

425 Early Christian and Byzantine Art to 1350 (3) Art in Italy and Eastern Europe from the beginnings of Christianity to 1350. Major achievements in sculpture and architecture. Writing-emphasis. (Same as Medieval Studies 371 and Judaic Studies 425.)

431 Medieval Art of the West, 800-1400 (3) Western European art of the “Dark Ages,” Romanesque, and Gothic periods. Writing-emphasis course. (Same as Medieval Studies 381 and Judaic Studies 431.)

441 Northern European Painting, 1350-1600 (3) From courtly art of late Middle Ages to Northern Renaissance. Prereq: Art History 172 and 173, or consent of instructor. Writing-emphasis course.

442 Art of Northern Europe, 1600-1675 (3) Concentrated study of Bruegel, Rubens, Rembrandt, Georges de la Tour, Van der Hoopen, Poussin, and Hals. Writing-emphasis course.


452 Art of Italy, 1450-1575 (3) Concentrated study of Leonardo da Vinci, Michelangelo, Titian, Raphael, and Giorgione. Writing-emphasis course.

453 Art of Southern Europe: 1570-1700 (3) Concentrated study of Caravaggio, Bernini, and Italian Baroque developments in all media. Spanish Baroque painting and sculpture with special attention to Velazquez. Writing-emphasis course.

454 Renaissance and Baroque Theory (3) Addresses the theory of Western art in the early modern period with emphasis on the development and evolution in European art during the Renaissance and Baroque periods. Prereq: Art History 172 and 173, or consent of instructor. Writing-emphasis course.

461 Art of Southern and Eastern Africa (3) Art traditions of the eastern and southern regions of Africa. Sculpture, painting, pottery, textiles, architecture and human adornment will be examined. Some ancient Stone and Iron Age traditions will be examined, but the main emphasis will be on the diverse ethnic and regional art traditions practiced in the area from the 19th century to the present. Writing emphasis course.

462 Art and Archaeology of Ancient Africa (3) Historical art traditions of sub-Saharan Africa. Topics to be covered include rock art, rock paintings, and archaeological sites and ancient kingdoms. The time period covered ranges from the first and second millennia B.C. for some of the terra cotta sculpture and rock paintings, the 11th through 19th centuries A.D. for the later ancient kingdoms. Writing emphasis course.

463 Arts of the African Diaspora (3) Examines the aesthetic, philosophical and religious patterns of the African elements of Brazilian, Surinam, the Caribbean and the United States. Emphasis will be placed on the full range of art forms, including the sculptural and performance traditions as well as architecture, textile, batik, and pottery art forms. Writing-emphasis course.

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

472 History of 20th Century American Art (3) Developments in architecture, painting, and design from 1900. Writing-emphasis course.
473 19th Century American Painting (3) From West and Copley to emergence of "The Eight." Writing-emphasis course.

474 Theory of 20th-Century Art in Europe and America (3) Addresses the theoretical basis for the modern movement. Emphasis on analyzing and discussing individual works of art in light of contemporary writings by artists and theorists. Prereq: 172 and 173 (or their Honors equivalents), or consent of instructor. Writing-emphasis course.


476 History of 20th Century Painting and Sculpture in Europe (3) Development of the Modern and Post-Modern movements in Europe. Investigation of the progression of abstraction through more recent conceptual trends. Analysis of the work of individual artists such as Picasso, Matisse, and many others. Writing emphasis course.

479 Special Topics in Art History (3) Student or instructor-initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

483 History of American Sculpture (3) American sculpture from prehistory to the 1960's. Writing-emphasis course.


489 Studies in Art History (3) Concentration in individually selected area. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

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

494 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

ART MEDIA ARTS (134)

191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated, medium may not 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.

235 Introduction to Cinematography as Art (3) Development of basic concepts and techniques for the creation of film as an art form. Prereq: or Coreq: 231 or consent of instructor. (Same as Cinema Studies 235.)

236 Introduction to Video Art (3) Development of basic concepts and techniques for the creation of video works as an art form. (Same as Cinema Studies 236.)

239 Special Topics in Media Arts (3) Student or instructor-initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

330 Media Arts Portfolio Review (0) Review of prior work in media arts. Successful completion required prior to registration for junior and senior courses. Prereq: Art History 172 and 173 with a grade of C or better. Satisfactory/No Credit only.

331 Photography II (4) Individual expression in photographic medium. Prereq: 231. May be repeated. Maximum 8 hours.


342 Large Format Photography I (4) Studio course introducing large format photography, black and white and color, medium format view camera. Prereq: 231, 311, and 331; and consent of instructor.

431 Photography III (3-6) Individual development of photographic problems and techniques. Prereq: 231 and 331. May be repeated. Maximum 12 hours.

433 History of Modern Art and Film (3) Study of the development and interaction between the cinematic arts and the visual arts within the context of modern art history. Available for Art History credit. (Same as Cinema Studies 433.)

435 Cinematography as Art (3) Continued development of concepts and techniques for the creation of film as an art form with an emphasis on individual projects. Prereq: 236 and 330 or permission of instructor. May be repeated. Maximum 9 hours. (Same as Cinema Studies 435.)

436 Video Art (3) Continued development of concepts and techniques for the creation of video works as an art form with an emphasis on individual projects. Prereq: 236 and 330 or permission of instructor. May be repeated. Maximum 9 hours. (Same as Cinema Studies 436.)

439 Special Topics in Media Arts (3) Student or instructor-initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

441 Digital Photography II (4) Continuation of exploration and implications of use of computer in photography. Prereq: 341, and permission of instructor.

442 Large Format Photography II (4) Studio course that continues the exploration of the use of the large format camera in photography. Prereq: 342 and permission of instructor.

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

494 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

495 Visiting Artist Seminar (3) Study and discussion of contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 12 hours.

ART PAIN TING (138)

191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated, medium may not be repeated. Maximum 12 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: Painting 213. May be repeated. Maximum 6 hours.


216 Watercolor II (3) Capacities of transparent watercolor, with attention to individual exploration of surface, space, and color. Prereq: Painting 215. 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: Consent of instructor. May be repeated. Maximum 12 hours.

313 Painting III (4) Individual expression with varied media on canvas. Prereq: 214 and 314 or consent of instructor. Prereq: Painting 312. May be repeated. Maximum 8 hours. Total of 12 hours required for students in the Painting concentration.

314 Painting Portfolio Review (0) Review of prior work in painting. Successful completion required prior to registration for junior and senior courses. Prereq: Art History 172 and 173 with a grade of C or better. Satisfactory/No Credit only.

315 Watercolor III (4) Individual expression with varied water-based media on paper. Prereq: 216 and 316 or consent of instructor. Prereq: Painting 312. May be repeated. Maximum 8 hours. Total of 8 hours required for students in the Watercolor concentration.

316 Watercolor Portfolio Review (0) Review of prior work in watercolor. Successful completion required prior to registration for junior and senior courses. Prereq: Art History 172 and 173 with a grade of C or better. Satisfactory/No credit only.

413 Painting IV (6) Advanced painting stressing individual concepts and personal expression with varied media. Prereq: 313. May be repeated. Maximum 12 hours. Total of 12 hours required for undergraduate students in the Painting concentration.

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. Total of 12 hours required for undergraduate students in the Watercolor concentration.

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

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

494 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

495 Visiting Artist Seminar (2) Study and discussion of contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 8 hours.

ART PRINTMAKING (132)

191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated, medium may not be repeated. Maximum 12 hours.

262 Intaglio I (3) Metal plate intaglio printing in traditional and contemporary techniques of etching, softground, drypoint, aquatint, and color methods. Prereq: 101.

263 Lithography I (3) Stone and aluminum plate lithography applying traditional and contemporary techniques of crayon, tusche, transfer methods, state proofs and photolithography. Prereq: 101.

264 Screen Printing I (3) Screen printing as a fine art medium including development and application of various basic stencils in compositional printing. May be repeated. Maximum 6 hours. Prereq: 101.

269 Special Topics in Printmaking (3) Student or instructor-initiated course offered at convenience of department. Prereq: 101 and determination by department for individual topic. May be repeated. Maximum 12 hours.

291 Papermaking Workshop (3) Papermaking as a medium for two- and three-dimensional art, includes sheet forming, imbedding, laminating, embossing, pulp dyeing, inlaying, casting, and other related techniques. Emphasis on development of a personal form.

360 Printmaker Portfolio Review (0) Review of prior work in printmaking. Successful completion required prior to registration for junior and senior courses. Prereq: Art History 172 and 173 with a grade of C or better. Satisfactory/No credit only.

362 Intaglio II (4) Exploration of concepts and techniques in intaglio printing including work from zinc, photo-zinc, and steel plates. Prereq: 262 and 360 or consent of instructor. May be repeated. Maximum 8 hours.

363 Lithography II (4) Exploration of concepts and techniques in lithography from stones, aluminum plates and photo-plates. Prereq: 264 and 360, or consent of instructor. May be repeated. Maximum 8 hours.

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

365 Intaglio III (3-6) Exploration of individual projects through advanced color printing methods and combinations with other print media. Prereq: 364, or consent of instructor. May be repeated. Maximum 12 hours.

463 Lithography III (3-6) Exploration of individual projects through advanced lithographic methods in combination with other print media. Prereq: 363, or consent of instructor. May be repeated. Maximum 12 hours.

464 Screen Printing III (3-6) Individual development of screen printing problems and techniques. Emphasis upon greater development of image and personal concept. Prereq: 364, or consent of instructor. May be repeated. Maximum 12 hours.
ART SCULPTURE (143)

191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated; medium may not be repeated. Maximum 12 hours.

241 Sculpture I (3) Problems which explore basic materials and techniques including clay modeling, plaster construction, molding, limited work in plastics, wood, or metal.

242 Life Sculpture (3) Modeling techniques in clay and wax, working from figure. Possibilities of expression with human figure as subject. Modeling process as both observational and material handling technique. Prereq: 101, 103, or consent of instructor. May be repeated. Maximum 6 hours.

243 Metal Cast Sculpture I (3) Metal casting methods in bronze or aluminum. May include lost wax, styrofoam, sand, ceramic shell casting methods. May be repeated. Maximum 6 hours.

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, modeling, molding, construction, and found objects.

249 Special Topics in Sculpture (3) Student on instructor-initiated course offered at convenience of department. Prereq: Art 101 and 103 with a grade of C or better. May be repeated. Maximum 12 hours.

340 Sculpture Portfolio Review (0) Review of prior work in sculpture. Successful completion required prior to registration for junior and senior courses. Prereq: Art History 172 and 173 with a grade of C or better. Satisfactory/No credit only.

341 Sculpture II (3) Further exploration and development of sculptural concepts and materials. Prereq: 241 and 340 or consent of instructor. May be repeated. Maximum 6 hours.

343 Metal Casting II (3) Further exploration of casting methods for bronze and aluminum. Prereq: 243 and 340 or consent of instructor.

345 Steel Sculpture II (3) Further exploration of construction in steel and other metals. Prereq: 245 and 340 or consent of instructor.

346 Mixed Media Sculpture II (3) Further problems in the sculptural use of two or more distinctive materials. Prereq: 246 and 340 or consent of instructor.

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: Successful completion of any Portfolio Review (Art 300, or Art Ceramics 320, or Art Design: Graphic 350, or Art Drawing 312, or Art Media Arts 330, or Art Painting 314, or Art Painting 316, or Art Printmaking 360, or Art Sculpture 340). May be repeated. Maximum 12 hours.

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

494 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

495 Visiting Artist Seminar (2) Study and discussion of contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 8 hours.

ART ARROWMONT PI BETA PHI SCHOOL OF ARTS AND CRAFTS

200 Special Topics (2-4) Student- or instructor-initiated course offered at convenience of department. May be repeated.

210 Drawing (2-4) Beginning to intermediate. May be repeated.

220 Ceramics (2-4) Beginning to intermediate. May be repeated.

230 Photography (2-4) Beginning to intermediate. May be repeated.

240 Painting (2-4) Beginning to intermediate. May be repeated.

250 Metal Design (2-4) Beginning to intermediate. May be repeated.

260 Fibers (2-4) Beginning to intermediate. May be repeated.

270 Fabric (2-4) Beginning to intermediate. May be repeated.

280 Enameling (2-4) Beginning to intermediate. May be repeated.

290 Wood (2-4) Beginning to Intermediate. May be repeated.

400 Special Topics (2-4) Student or instructor initiated course offered at convenience of department. May be repeated.

410 Drawing (2-4) Intermediate to advanced. May be repeated.

420 Ceramics (2-4) Intermediate to advanced. May be repeated.

430 Photography (2-4) Intermediate to advanced. May be repeated.

440 Painting (2-4) Intermediate to advanced. May be repeated.

450 Metal Design (2-4) Intermediate to advanced. May be repeated.

460 Fibers (2-4) Intermediate to advanced. May be repeated.

470 Fabric (2-4) Intermediate to advanced. May be repeated.

480 Enameling (2-4) Intermediate to advanced. May be repeated.

490 Wood (2-4) Intermediate to advanced. May be repeated.

ASIAN LANGUAGES (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

199 Chinese and Japanese Language and World Business (3) Examines the importance of foreign trade at the local, state, and national levels. Interdisciplinary faculty from the Colleges of Business Administration and Arts and Sciences provide an overview of the value of language study and international cultural awareness in the program in Language and World Business. See Director for further information. F

231-232 Intermediate Chinese I, II (5,5) Prereq: 131-132 or equivalent or consent of instructor. Must be taken in sequence.

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) 311-Classical literature. 312-vernacular and modern literature. 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, drilled, 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 Japanese or consent of instructor. May be repeated. Maximum 9 hours.

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

491 Chinese and Japanese Foreign Study (1-15)

ASIAN STUDIES (145)

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

121-122 Elementary Modern Standard Arabic I, II (4,4) Taped language program. Must be taken in sequence. Enrollment by permission of instructor.

141-142 Elementary Modern Hebrew I, II (4,4) Taped language program. Must be taken in sequence. Enrollment by permission of instructor.

161-162 Elementary Persian (4,4) Taped language program. Must be taken in sequence. Enrollment by permission of instructor.

221-222 Intermediate Modern Standard Arabic I, II (4,4) Taped language program. Must be taken in sequence. Enrollment by permission of instructor.

241-242 Intermediate Modern Hebrew I, II (4,4) Taped language program. Prereq: 141-142 or equivalent or consent of instructor. Must be taken in sequence.

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

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 composition, 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 theories of the origin and evolution of our solar system; light of current knowledge and scientific reasoning; stellar birth, evolution and death as a chain of events; characterizations of galaxies and the origin 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 star chart field work. Only one of the three sequences 151-152, 161-162, or 217-218 may be taken for credit.

495 Visiting Artist Seminar (2) Study and discussion of contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 8 hours.
494 Introduction to Language Pathology in Children (3) Nature, etiology and treatment of language retardation in children; observations of language therapy required. Prereq: 302 or consent of instructor.

473 Introduction to Audiologic Assessment (3) Basic principles of clinical audiology; pure tone, speech, masking and overview of special audiometry tests. Prereq: 303.

491 Foreign Study (1-15) [42x83]

490 Perspectives in Biochemistry and Cellular and Molecular Biology (3) Current issues in biochemistry, cell biology and molecular biology. Emphasis on current developments and their applications, societal and ethical implications, and moral and legal implications. Writing emphasis course. Prereq: Consent of instructor. Prereq: 490 or consent of instructor.

410 Cellular and Comparative Biochemistry (4) Electrophoresis, behavior, chemistry and structure of proteins; enzyme behavior and biological function; catabolism and energy capture; synthetic metabolism; nucleic acid function; protein synthesis, and biochemical genetics; regulation of biological processes. Prereq: Chemistry 350-360-369 and Biology 140-240, 3 hours and 1 discussion. Not available for credit if credit has previously been received for CBMB 401. A credit may be applied toward BCMB concentration. Sp.

411 Advanced Cellular Biology (3) Cellular structure and function at the molecular and supramolecular level. Topics include protein structure and function, membrane structure and function, and control of protein function, immunity, cell regulation, stress and the cell cycle, cytokinesis and cell motility, cell-cell interactions and tissues. Prereq: 401 or 410.

415 Foundations in Neurobiology (3) Basic nerve cell physiology, nervous system organization, sensory and motor systems, neural basis of behavior, and nervous system development and plasticity. Prereq or coreq: Physics 221-222; Chemistry 120; Biology 140. F.

416 Neurobiology Laboratory (2) Experiments designed to illustrate concepts of modern neurobiology using electrophysiological, historical, and behavioral neurobiological techniques. Prereq or coreq: 415. S.

420 Advanced Topics in BCMB (3) Selected Topics of current research in molecular, genetic, cellular and developmental biology. Laboratory rotation program. Independent study projects will be developed to design and execute an experiment in the student's current research interest, e.g., allosteric theory and protein synthesis, and biochemical genetics; regulation of biological processes. Prereq: Chemistry 350-360-369 and Biology 140-240, 3 hours and 1 discussion. Not available for credit if credit has previously been received for CBMB 401. A credit may be applied toward BCMB concentration. Sp.

421 Cell and Tissue Structure and Function (4) Study of animal cells and tissues at light and electron microscope levels. Prereq: Biology 140. 2 hrs and 2 labs.

429 Cell Biology Laboratory (3) A series of open-ended, discovery-based exercises will be developed to design and test new drugs, understanding the cell biology and computer technologies. Experimental modules include techniques used in cell isolation, purification, culturing, fluorescent microscopy, receptor binding and signal transduction, apoptosis, cell cycle analysis, protein and steroid secretion, computer modeling, and state-of-the-art electron microscopy. Students will actively participate in all aspects of the experiment from design, analysis, and peer evaluation. Prereq or Coreq: 401 or 410. F.

440 General Physiology (3) Principles of cellular and organ-system animal physiology. Prereq: Biology 140. Coreq: Organic chemistry, Recommended prerequisite: Physics 221-222. F.

452 Independent Research in Biochemistry (1-6) Special experimental problems under direction of a staff member. Limited to undergraduates and by consent of instructor. May be repeated. Maximum 12 hours. Prereq or Coreq: 410, 415.
462 Junior/Senior Seminar (1) Lecture/discussion on the application of biochemical principles and techniques in the research, clinical, diagnostic or therapeutic environment. May be repeated. Prereq: 410. 
465 Human Genetics (3) Genetic and molecular principles and problems of human inheritance. Prereq: Biology 240.

471-481 Biophysical Chemistry (3,3) Physicochemical principles with applications to biological systems. 471: Thermodynamics; chemical equilibrium; solution chemistry; transport; electrochemistry; kinetics; enzyme catalyzed reactions. 481—Elementary quantum chemistry; principles of photophysics, interactions between molecules; optical and magnetic spectroscopy; light scattering; case studies of selected macromolecules. Prereq: Calculus, Organic Chemistry, consent of instructor. (Same as Chemistry 471-81). F, Sp

480 Physiology of Exercise (3) (Same as Exercise Science 480).

492 Off-Campus Study (1-6) No more than two credits of 492 will count toward the Biological Sciences: BCMB major. Satisfactory/No Credit grading.

**BIOLOGY (190)**

101-102 Hamkink and in the Biotic World (4,4) Introduc tion to the principles and applications of the diversity of plants, animals, and microbes on human life, and the impact of humans on the biosphere, intended for students not majoring in the biological or pre-health sciences. 101 surveys life from the cell to topics in human health. Topics include: macromolecules and cells, energy flow in biological systems, genetics and information flow from generation to reproduction, biotechnol ogy and genetic engineering, sex and sexuality, human physiology, cancer, drugs—use and misuse. 102 fo cus es on the diversity of the Earth’s biota and the interdependence among communities. Topics include: surveys of biodiversity from bacteria to higher plants and animals, genetics and evolutionary processes, popula tion biology, ecology, behavior, and environmental issues, including world population, and global climate change. Each course is 3 hours lecture, 1 hour discussion-laboratory. Laboratories involve a mix of skills-oriented exercises and assignments focused on topics. Although not required, it is strongly recommended that 101-102 be taken in sequence.

130 Biodiversity (4) Unifying concepts and principles of biology, illustrated with diversity of life, intended for science majors. Properties of life, molecular basis, origin of life, cells, genetics, introduction to kingdoms, origins of multicellular plants and animals, ideas about evolution, man’s place in nature. Emphasis on common themes in living systems (e.g., metabolism, protein and nucleotide sequence similarities, morphology, phylogeny, toxicology, and adaptation); the two domains and animal groups. Writing and analysis of lab activities required. 3 hours lecture, 1 hour lab each week. Credit not available for only credit for both 101 and 102.

140 Organization and Function of the Cell (4) Topics include: basic organic chemistry and biopolymers, cell structure—membranes, cell walls, and internal organelles; energetics—respiration and photosynthesis; cell division—mitosis; and molecular biology. Labs will stress basic laboratory skills and procedures such as measuring pipetting and mixing solutions, as well as introduce modern metabolic and molecular techniques such as electrophoresis and centrifugation. Prereq: 130, Chemistry 120; coreq: Chemistry 130.

202-203 Inside the Biological Sciences (1,1) Presentations by faculty and other biology professionals emphasizing selected research biological research. Familiarizes students with diverse nature and current applications of biology. Open to freshmen and sophomores. Satisfac tory/No Credit only. May be repeated.

240 General Genetics (4) Classical and modern principles of heredity; properties of mammalian transmission genetics; molecular genetics and gene expression; population and evolutionary genetics. Laboratories will alternate with lecture, and will include both computer based simulations and hands-on experience with model genetic systems. Emphasis on development of analytical skills. Prereq: 130-140 or Bot 110-120; Chemistry 120-130.

250 General Ecology (4) Relations between organisms and their environment, including human environmental problems. Topics include populations, communities, and ecosystems, energy and nutrients, soil, aquatic systems, food chains, and disasters. Prerequisites: A score of 50% on any computerized tutorial, field problems or computer simulations. A working knowledge of college algebra is required. Prereq: 130-140 or Bot 110-120; Chemistry 120-130.

307-308 Honors Seminar in Biological Research (1,1) Presentations by professional biologists emphasizing rewards of careers in different areas of biology. Nationally recognized speakers invited each term. Open to sopho more, juniors and seniors; required of Threshold Biology Scholars. Prereq: 8 hours of 200 or above, admission to an honors program or permission of the instructor. Satisfactory/No Credit only. May be repeated. F, Sp

397 Honors Seminar on Research Skills (3) Technical and practical skills for participation in biologi cal research. Lecture/presentations and small team demonstrations and discussion. Required of (but not limited to) Threshold Biology Scholars. Prereq: 8 hours of 200 or above. Permission of instructor required. F

398 Honors Practicum in Biological Research (3-5) Rotation through 3-5 modules of required an d elective experience in participating laboratories. Required of (but not limited to) Threshold Biology Scholars. Prereq: 8 hours of 200 or above and 397. Permission of instruc tor required. S

401 Senior Thesis (3-12) Required research experience of Threshold Biology Scholars. Students design research projects, collect research data, organize thesis documents, and prepare presentations. May be repeated. Maximum of 12 hours. Prereq: 394-395.

4110 Methods Engineering (3) Fundamentals of power delivery systems and simple mechanisms; selection and design of mechanical, hydraulic, and thermal power transmission systems. Emphasis on off-road vehicles and bioprocessing systems. Prereq: 431, Mechanical Engineering 231 and 321. 2 hours and 1 lab. Sp

411 Natural Resource Engineering (3) Introduction to hydrologic cycle; movement of water and interaction with environment through such processes as erosion and contaminant transport. Impacts through estimation and measurement, and controlling impacts through engineer ing design. Specific designs: waterways, erosion and sediment control structures, waste management sys tems, bioprocessing systems, sensor monitoring systems. Prereq: 321, Environmental and Soil Sciences 210, Civil Engineering 390 or Aerospace Engineering 341, 2 hours and 1 lab. F

431 Bioprocessing Engineering (3) Application of basic engineering principles to processing and handling of biological materials; physical, chemical, biological properties; materials handling; material conversion operations; drying; heat processing; and bioprocessing. Prereq: 240 or equivalent. F

44 Life Systems Engineering (3) Design of controlled environments to optimize conditions for organism growth and development: growth equations and population dynamics; plant growth systems, microbial growth systems; environmental growth systems. Prereq: 321. 2 hours and 1 lab. Sp

444 Practicum (3) Application of engineering theory and design in selecting, sizing, and fabricating engineering materials and developing processes and systems, typically used in biosystems engineering. Must be taken in same semester as 401. 1 hour and 2 labs. F

45 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 exercises and design projects in control, and a 1 hour lab. Prereq: Electrical Engineering 301. 3 hours and 1 lab. Sp

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

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

**BIOSYSTEMS ENGINEERING (196)**

104 Design Apprenticeship (1) Exposure to design in biosystems engineering, through apprenticeship with senior design teams in Biosystems Engineering 402. Apprentices will maintain a journal describing their activities in assisting the senior design engineers, and will make an oral presentation summarizing the design project with which they assisted. Grading will be based on journal submissions, contributions to the design team, and the final presentation. Prereq: Engineering Fundamentals 101, 2 hours lab. Sp

201 Career Opportunities (1) Activities and opportunities in the fields of specialization; required training for each area; projected career activities. 1 hour. F

221 Mass and Energy in Biosystems (3) Introduction to thermodynamic concepts for biological systems (energy, mass and energy flow, work). Biokinetics and psychrometrics; psychrometric processes; biological systems and the biosphere (bioenergetics, hydrologic cycles, photosynthesis, carbon cycle). Coreq: Chemistry 130. Prereq: Engineering Fundamentals 102, 2 hours and 1 lab. F

231 Biothermodynamics, Heat and Mass Transfer (3) Application of thermodynamics to biological systems; heat transfer, with emphasis upon conduction and convection applications; introduction to diffusion mass transfer. Coreq: Mathematics 241. Prereq: 221, Nuclear Engineering 203. 2 hours and 1 lab. Sp

401 Biosystems Engineering Design I (3) First course of a capstone design sequence. Review of fundamental engineering principles, time and project management, ethics, contemporary issues in biosystems engineering, portfolio review, and design proposal generation. Design projects will include conceptualization, design, and preliminary analyses. Prerequisite: 451 and senior standing or consent of instructor. Coreqs: 403 or 432 or 430 or 433. F

402 Biosystems Engineering Design II (6) Culmination of capstone design sequence. Introduces students to experience on project chosen and approved in Biosystems Engineering 401. Analysis, construction, testing, evaluation and reporting required. Technical stress is on data collection, analysis, interpretation, and preliminary analyses. Prerequisite: 451 and senior standing or consent of instructor. Coreqs: 403 or 432 or 430 or 433. F

**BIOSYSTEMS ENGINEERING TECHNOLOGY (194)**

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

212 Surveying (3) Measurement of distances, angles, and areas; differential and profile leveling; topographic surveying and mapping; area computation. Prereq: Math 119 or consent of instructor. 1 hour and 3-lab F

326 GIS/GPS Applications in Agriculture and Environmental Science (3) Introduction to the application of Geographic Information Systems (GIS) and Global Positioning Systems (GPS) in agriculture and in environmental science. Students will cover web interfaces of on-equipment and on-concepts, GPS receivers, data acquisition, and spatial analysis of data to solve problems. Case studies in agriculture, demography, precision agriculture, pasture management, water quality, watershed management, and waste pollution will be used to provide hands-on experiences with these emerging technologies. Prereq: Agricul ture and Natural Resources 290 or equivalent. S

414 CAD Applications to Biosystems Engineering Technology (3) Computer Aided Drafting (CAD) applica tions in agriculture and environmental science. Essential CAD software to aid in project planning, design, and development of systems, flow charts, and process diagrams. Applications in mechanical, structural, and biosystems. 2D applications with limited 3D capability. Prereq: Computer intensive course. Hands-on experience. Prereq: Computer proficiency and admission to graduate program. (Students cannot receive credit for both 414 and 514.) Two 2-hour labs. F
422 Food and Process Engineering Technology (3)
Application of basic engineering principles to agricultural and food processes. Fluid handling, drying, evaporation, fermentation, and transportation. Prereq: Physics 101 or 221. 2 hours and 1 lab. F.

432 Agricultural Machinery and Tractors (3)
Functions, selection, matching, and management of agricultural machinery. Design, testing, power ratings, and transmission systems, hydraulic systems, hitching, and ballasting. Field and material capacity, field efficiency, cost analysis. Undergraduate replacement strategies. Functional analyses of tillage operations, planters and drills, no-tillage systems, hay harvest systems, forage and small grain harvesting, and cotton harvesting. Crop drying principles and machinery safety considerations, and operator ergonomics. Prereq: Mathematics 123 or 125 or consent of instructor. 2 hours and 1 lab. Sp.

442 Agricultural Waste Management and Pollution Control (3)
Waste utilization fundamentals; characteristics of animal manure, biosolids, and organic household waste. Collection, storing, and utilizing livestock waste. Prereq: Mathematics 125 or 123 or equivalent. 2 hours and 1 lab. F.

452 Small Internal Combustion Engines (3)
Theory, concepts and mechanisms of small internal combustion engines; theoretical cycles, selection, operation, adjustment, troubleshooting and repair of single-cylinder engines. Prereq: Mathematics 123 or 125 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; system components; operational characteristics, equipment selection, and management; safety considerations; materials handling and disposal methods. Prereq: Mathematics 123 or 125 or consent of instructor. 2 hours and 1 lab. Sp.

474 Environmental Instrumentation and Monitoring (3)
Equipment and techniques commonly used to measure all aspects of hydrologic cycle: precipitation, runoff, streamflow, subsurface water movement. Sampling of all components of the hydrologic cycle. Laboratory and field design and management. Analysis of data. Prereq: Environmental and Soil Sciences 324, Statistics 201, Math 152, or consent of instructor. Students cannot receive credit for both 474 and 574. 2 hours and 1 lab. Sp.

BOTANY (198)
110-120 General Botany (4,4)
110 - Introduction to taxonomy through tree identification; basic organization and function of cells; respiration; photosynthesis; genetics (including meiosis, mitosis, Mendelian inheritance); study of different taxonomic groups (algae, fungi, mosses, ferns, conifers, and flowering plants). 120 - Plant growth, development, anatomy, growth regulation; uptake and transport; origin of life; evolution; ecology; immunity; human and environmental concerns. Students receiving credit for 110-120 may not receive credit for either Biology 130-140 or Biology 101-102, 110-F, 120-Sp.

305 Socio-Economic Impact of Plants (3)

306 Genetics and Society (3)
Introduction to genetics, anthropophagy and evolution with emphasis on their implications for human society. (Same as Anthropology 306.)

309 Biology of Human Affairs (3)
Basic biological principles involved in deterioration and preservation of an environment in which humans and their cultures may survive.

310 Plant Morphology (4)
Morphology, development, natural history, and evolution of non-vascular plants (mosses, algae, fungi, and bryophytes) and vascular plants (ferns, fern allies, gymnosperms, and flowering plants). Prereq: 110-120 or Biology 130-140 or equivalent. F.

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

321 Introductory Plant Physiology (4)
Organismal physiology of plants; water relations, mineral nutrition, morphogenesis, regulation of metabolic processes, effects of age, light, natural rhythms, temperature, and other environmental factors. Lecture and lab. Prereq: One year general chemistry and one year biological science. F.

330 Field Botany (3)
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.

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 1 hour.

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 Field Studies in Botany: Specific Topic to be announced (1-3) Field experience and taxonomy of special plant groups. Selected field topics will vary and may include: Bryology, Lichenology, Pteridology, Agrostology, Mycology, Phyiology, Aquatic Vascular plants, Synantherology, Woody Plants, and Botanical Photography. May be repeated, but no specific topic may be repeated for credit. Maximum 9 hours.

404 Plant Molecular Biology (4)
Instruction to current research in plant molecular biology and to commonly used techniques and procedures. Lectures include genome structure, gene expression and regulation, transformation, transposable elements, plant development, etc. Labs include isolation of DNA and RNA, amplification of specific sequences, DNA sequencing and transformation. Prereq: Biology 140 and 240 with a grade of A or B and consent of instructor.

410 Plant Anatomy (3)
Cells, tissues and organs; their development in vegetative and reproductive structures of vascular plants—emphasis on seed plants. Prereq: 110-110 or Biology 100-140 or equivalent.

419 Science as Method (3)
(Same as Ecology and Evolutionary Biology 419 and Phage 419.)

431 Plant Ecology (3)
Interactions between individuals, species, communities and their environments. Circulation of energy and matter in ecosystems. Weekly field trips or laboratory periods, and at least two weekend field trips. Prereq: 330 or equivalent. Su (Same as Ecology and Evolutionary Biology 431.)

442-444 Undergraduate Research Participation (1-2,1-2) 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.

451 Plant Tissue Culture (3)
Methods for the culture of cells, tissues, and organs including media preparation and manipulation, plant nutrient and hormone analysis and techniques. Prereq: 110-120 or Biology 130-140 or equivalent and Chemis-

471 Senior Seminar (3)
A capstone course conducted in seminar format dealing with topics of current interest in plant biology. Written reports and oral presentations are required. Prereq: Senior standing.

499 Evolutionary Ecology (3)
Basic concepts in evolutionary and ecological genetics. Biogeography, climate, population genetics, evolution and natural selection, population growth and regulation, competition, niche, experimental evolution, predation, phylogenetics in ecology, biodiversity and conservation. Prereq: General Biology and General Ecology. Students may not receive credit for both 499 and 599. (Same as Ecology and Evolutionary Biology 499.) Sp, A-D.

BROADCASTING (202)
275 Introduction to Radio and Television (3)
Lecture and lab course providing students with an overview of radio, television, cable and related technologies. Includes history, programming, regulations, and effects of radio and television on society. Prereq: General Biology and students gain practical experience in radio at WUTK-FM. Prereq: Communications 100 or Speech Communication 100.

310 Radio-TV News (3)
Writing and reporting for electronic media. Lecture and lab course with writing emphasis. Includes work experience at WUTK-FM. Prereq: 275.

320 Radio-TV Advertising and Promotion (3)

330 Audio/Video Production (3)
Emphasis on the function and operation of the primary video and audio tools to develop effective communication. Lecture and laboratory provide experience in studio production process and procedures. Includes concept development, script writing, message design, applied aesthetics, crew management, and producing. Prereq. 275.

360 Radio-TV Performance (3)
Development of vocal, visual and performance skills for announcers, interviewers, narrators, reporters, and newscasters. Laboratory hours required. Prereq. 275.

410 Electronic News Gathering (3)
Writing, reporting, producing and producing news for television. Lecture and lab course providing students with experience as reporters/producers for a television news program. Includes an overview of electronic news gathering equipment and techniques as well as video editing. Prereq. 310.

420 Radio-TV Sales (3)
Problems and practices of radio, television and cable sales. Case studies in sales and sales management; use of ratings and computers in sales research and sales operations. Prereq. 275.

430 Electronic Field Production (3)
Basic principles of video production on location. Emphasis on the concepts relating to message design, development, and production in the field. Includes concept development, script writing, shooting, graphics, sound design, lighting, and editing. Prereq. 330 or consent of instructor.

440 Corporate Video (3)
Examination of special requirements of business, industrial, educational and medical uses of video. Management, budgeting, planning, producing, and evaluating projects. Prereq. 430 or consent of instructor.

450 Radio, Television and Society (3)
Effects of electronic media on society. Research and theory applied to current issues. Prereq. BRD 275.

460 Broadcast News Operations (3)
Production of news program for broadcast on television stations. Electronic news gathering, editing and writing news packages, and studio production. Prereq. 410 or consent of instructor.

470 Cable, Broadband, and Interactive Digital Media (3)
History and structure of cable television and other broadband delivery systems (DBS, Internet, etc.). Development of digital broadcasting, interactive television, and other broadband media systems and digital technologies. Analysis of business issues arising from new media and digital technologies. Prereq. 275 or consent of instructor.

480 Radio and Television Programming (3)
Programming practices in radio, television, and cable. Nature and economics of broadcast operations, program production, and management. Issues arising from new media and digital technologies. 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 with an emphasis on mid-level management. Capstone course to be taken in student’s last semester. Prereq. Senior standing.

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

494 Special Topics (3)
Salient issues in electronic media. Topics vary. Prereq: Consent of instructor. May be repeated. Maximum of 6 hours.
BRAINBEACH ADMINISTRATION (205)

101 Basic Business Applications (1) An online course with GTA coordination, covering basic computer fundamentals, operating systems basics, Lotus Notes Groupware, and Microsoft Word, Excel, and PowerPoint. Exit testing is in the form of online performance tests in the applications, on scheduled examination periods. Not available for credit if Management 203 or equivalent has been completed. S/NC credit only.


220 Business Career Planning (1) Introduction to Business, concentration options, career opportunities. Making the commitment/career decision, preparing for and conducting a job campaign. Satisfactory/No Credit only. Required for satisfactory progression to upper-division level in Business. Prereq: Business Pre-major.


331 CBM: Supply Chain Management (2) Coordinating the end-to-end relationships between supply chain members, from inputs to delivery of product/services. Understanding impact of demand and supply information flows across the supply chain. Emphasis on integrating activities through improved processes and relationships to achieve and maintain competitive advantage. Prereq: Progression as a business major in the College of Business Administration and junior standing. Coreq: BA 332.

332 CBM: Demand Management (2) Analysis of current and future markets opportunities. Translation of identified opportunities into strategies to select, acquire, and retain customers that are consistent with overall organizational objectives. Includes design, execution, and evaluation of strategies from the perspective of an organization within a channel of distribution context. Prereq: Progression as a business major in the College of Business Administration and junior standing. Coreq: BA 331.

341 CBM II: Lean Operations (2) Design of the product delivery system in manufacturing and service operations. The dynamics of the supply chain. Managing flows in manufacturing and service processes. Specific techniques for implementing lean design, such as pull replenishment, cellular layout, standard work, and mixed-model sequencing. Prereq: Progression as a business major in the College of Business Administration and junior standing. Coreq: BA 342.

342 CBM II: Information Management (2) Emphasis on the concepts, structure, and components (input, processes, output, feedback and control) of information systems, and database design and management. Includes the role, function and integration of information systems and technology into business activities. Prereq: Progression as a business major in the College of Business Administration and senior standing. Coreq: BA 341.

351 CBMIII: Business Management: The Marketplace (2) Integrative experiential learning experience to facilitate student learning of the interrelationships between the perspectives of supply chain management, demand management, operations management, and information management. Prereq: BA 331-332, BA 341-342. Must be admitted to a business major in the College of Business Administration and be of junior standing. Core: Business Administration 352.

352 CBM II: Organizational Behavior (1) Behavioral processes in organizations; motivation, leadership, decision-making, communication; behavioral consequences of group behavior, informal organizations, organizational structure, conflict, politics, change and development. Prereq: BA 331-332, BA 341-342. Must be admitted to a business major in the College of Business Administration and be of junior standing. Core: BA 351.

361 The Firm in a Global Context (3) Domestic and international factors that impact the decision-making process of the firm; domestic and international macroeconomics; international law, political, socio-cultural, and institutional systems. Emphasis on relationships between theoretical models and actual problems encountered in the conduct of business. Prereq: Business Administration 201.


400 Special Topics (1-9) Topics of current interest in business. Topics announced prior to offering. May be repeated for additional credit provided topic is different. Maximum 9 hours. Prereq: consent of instructor.

467 Honors: Corporate Executive in Residence Seminar (3) Interaction with top corporate executives from a wide spectrum of business disciplines. Domestic and international strategic planning as it is applied in major U.S. Corporations. Executive presentations and small group discussion on goods and services in consumer and industrial settings. Prereq: Senior standing, Finance 301, Business Administration 332 and 341, and consent of instructor.

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

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

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

495 Seminar in International Business Policy (3) Capstone course for students in the Language and World Business Program designed to integrate concepts covered in other business courses. For students 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 related to business, administrative regulation, securities law, antitrust law, employer-employee relations, product liability, consumer protection, business associations, environmental law, international law, contracts, and white collar crimes and torts. Prereq: Junior standing. E


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. E

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, nucleic acids. 3 hours and 1 lab. Prereq: 100 or 130 or 138. E

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, thermodynamics, descriptive chemistry of nonmetallic and metallic elements, and transition to organic and biochemistry. Prereq for 130: 120 or 128. 3 hours and 1 lab. E

128-138 Honors: General Chemistry (4,4) 3 hours and 1 lab. 128-F, 138-Sp

150 Chemistry and Society (3) Food and agricultural chemistry: chemistry of electricity in medicine, air and water pollution; energy and fuels. 3 hours lecture. Not a prerequisite for any other chemistry course. F

160 Chemistry and the Home (3) Chemistry and the consumer; household products; chemistry in the kitchen and around the home. 3 hours lecture. Not a prerequisite for any other chemistry course. F

200 Introduction to Chemical Research (1) Participation in an active research program in analytical, inorganic, organic, physical, or polymer chemistry. Students work with researchers to acquire expertise in planning experiments, interpreting results, and communicating hypotheses. Credits may not be applied toward a major or minor in chemistry. Not a substitute or prerequisite for 400. Prereq or Coreq: 200 or higher level course in chemistry and consent of instructor. May be repeated. Maximum 4 hours. E

230 Inorganic Chemistry (3) Periodicity, valence, bonding, and the descriptive chemistry of the elements; coordination compounds; chemical equilibria; inner transition elements, inner transition elements. 2 hours and 1 lab. Prereq: 130 or 138. F

240 Chemical Programming (2) Use of the computer in solving problems encountered in chemistry. Required of and limited to chemistry majors. Prereq: 130 or 138. 1 hour and 1 lab. Sp

301 Industry/Laboratory Internship (3) Supervised by industry/laboratory technical staff at an approved facility. Consists of a full-time “hands-on” individual assignment on a semester or experimental team. Credits may not be applied toward a major or minor in chemistry. May be repeated. Prereq: 130 or 138 and consent of Department Head. S/NC grading only. E

310 Analytical Chemistry (3) Principles and practices of quantitative measurements in chemical systems. Acid-base, complexometric, and redox equilibria; applications of titrimetric analysis; potentiometric and other physical methods. Must be taken in sequence. Prereq: 130 or 138; Coreq for 360: 350. E

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 138; Coreq for 360: 350. E

369 Organic Chemistry Laboratory (2) Experiments on topics discussed in 350-360. Coreq: 360, 1 hour lecture and 4-hour lab. E

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 curriculum. May be followed by either 400 or 408 (but not both); maximum of 6 hours of Research in Chemistry. E

401 Advanced Industry/Laboratory Internship (3) Supervised by industry/laboratory technical staff at an approved facility and by a chemistry faculty member serving as liaison between the laboratory and the university. Consists of a full-time “hands-on” individual assignment for entire semester as a member of a theoretical or experimental team. Final comprehensive written report required. May not be repeated. Prereq: 230 or higher numbered course in chemistry and consent of Department Head. E

405 Topics in the Development of Chemistry (3) Historical development of topics such as the atomic theory; chemical industry; interrelationship of population, food, and agriculture. Subject matter to be selected 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 will be required. Coreq: 400 or standing in chemistry. Writing-emphasis course. F
Courses of Instruction 163

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 required to enroll. Coreq; Senior standing in chemistry. May be repeated. Maximum 2 hours. Sp

408 Honors Research in Chemistry (3) Advanced students work with faculty on research projects requiring knowledge and skills acquired in chemistry curriculum. An Honors Thesis is required. This thesis is defended orally before a faculty committee. Prereq; 400. E

420 Selected Topics in Chemistry (1-3) Topics of current significance in Chemistry. May be repeated. Maximum 6 hrs. Only three credits may be applied to a major or minor in Chemistry. Prereq; consent of instructor.

430 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. Sp

439 Advanced Inorganic Chemistry Laboratory (1) Modern experimental techniques in inorganic chemistry, including synthesis, analysis, and handling of air-sensitive materials. Coreq. 430. Open to B.S. in Chemistry students or with consent of instructor. 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

471-481 Biophysical Chemistry (3,3) (Same as BCMB 471-481.)

473-483 Physical Chemistry (3,3) Students may not receive credit for both 473 and 473 nor for both 481 and 483.

473—Properties of gases; first, second and third laws of thermodynamics; chemical equilibria; simple phase equilibria; properties of solutions. 483—Introduction to statistical thermodynamics; kinetics of chemical reactions; introduction to quantum mechanics and applications to electronic structure of atoms and molecules; molecular spectroscopy. Prereq. 130 or 138, Physics 136 or 138 or 222 or 231, and Mathematics 241 or 247.

479-489 Physical Chemistry Laboratory (2,2) Experiments on thermodynamics, quantum mechanics, molecular structure, chemical equilibria, simple phase equilibria, properties of solutions. Prereq: Coreq; or Coreq; Corresponding courses 471 or 473 for 479 and 481 or 483 for 489. 1 lab. 479-E, 489-Sp

490 Introductory Polymer Chemistry (3) Fundamental principles stressing the role of chemistry in the interdisciplin ary field of polymer science. Relation of molecular structure to bulk properties of polymers. Prereq; 360. Prereq or coreq; 471 or 473. 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 (2) Community and school-based programs that focus on enhancing individual and family life. Includes observational experience. Satisfaction/No credit grading only.

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

211 Development in Infancy and Early Childhood (3) Development from conception through early childhood; interrelationships among cognitive, emotional, social, 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.

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

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

312 Families in Middle & Later Adulthood (3) Adult life in society from youth through elderly; adjustment to internal and external changes through adulthood; interrelationships among various aspects of development: physical, cognitive, emotional, social. Includes observation.

320 Parenting (3) Factors in contemporary American families impacting interactions across the life cycle. Review of strategies 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 goal-attainment strategies; constraints within families. Observation and analysis of diverse family practices. Prereq: 220 or consent of instructor.

350 Early Childhood Education I: Environments for Children (3) Early childhood education, behavior management, behavior change, organization of day care environments, communication, interpersonal skills, interaction with children, child stress reduction and management in classroom. Laboratory participation included. Prereq. 110 and 211, HRD 210, admission to the major or consent of instructor.

351 Early Childhood Education II: Curricula and Program Development (3) Emphasis on effective early learning programs for young children relating knowledge of children’s growth and development to appropriate experiences in art, music, number, logic, media, physical knowledge; planning, implementing, evaluating curriculum activities. Laboratory participation included. Prereq. 350 and admission to the Child Development major or admission to the Early Childhood Education licensure program.

352 Diversity in Family-School-Community Relations (3) Techniques for developing community relationships including advocating for children and families from diverse cultural and populations. Includes observation. Prereq or Coreq: 351 or consent of instructor. Sp

353 Reading, Language, and Literacy (3) Theory and methods for creating learning environments for the development of language, emergent literacy, and reading and writing skills from infancy through eight years. Prereq: 350 and admission to Early Childhood Education licensure program or consent of instructor.

360 Family Stress (3) Family’s response to stressful circumstances; skills for intervention into family systems; violence, abuse, divorce, illness, death. Prereq. 220 or consent of instructor.

405 Development and Teaching of Interpersonal Skills (3) Development of basic interpersonal skills needed to work with families and other professionals. Skills include active listening, self-disclosure, relationship-building, and negotiation. Process of teaching interpersonal skills and group facilitation in community setting. Prereq: Family Studies majors only.

420 Family Diversity (3) Cultural, socioeconomic, ethnic variations, including needs and programs. Prereq. 220, Junior standing or consent of instructor. (Same as African-American Studies 420.)


430 Family Communication (3) Dynamics of interactions within family systems, marriage, and parent-child relationships. Study of verbal and nonverbal communication processes, patterns and problems. Prereq. 220 or Sp 320 or consent of instructor. (Same as Speech 430.)

440 Family Life and Parent Education (3) Emphasis on skills required to develop family life education programs implemented in community settings. Overview of current approaches to the process of relating to parenting and parent education programs. Prereq: Family Studies majors only.

450 Assessment in Early Childhood Programs (3) Methods and principles of assessment of children, birth through 8 years of age. Includes participation. Prereq. 350 and admission to the major or ECE licensure program. Prereq or Coreq. 351.

451 Early Childhood Education III: Including Exceptional Children (3) Individualized curriculum planning based on knowledge of normative, nonnormative development, assessment, 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.

455 Children and Stress (3) Theory and methods for understanding young children’s stressors, examining children’s coping strategies, and designing appropriate intervention strategies and learning environments.

Prereq; Admission to the Child Development major or the Early Childhood Education licensure program or by consent of instructor. Sp, A

460 Directed Study in Child and Family Studies (1-3) Individualized 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 (6-12) Responsibility for planning and guiding groups of infants, toddler, 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 progression requirements. Satisfaction/No Credit only. F and Sp student teaching begins on first day of Fall and Spring semesters, and final exam week of Fall and Spring semester period (student teaching follows the CDL calendar and does not include Fall or Spring break). Summer student teaching begins the day following Spring commencement and ends on the day before Summer commencement. Priority for summer students teaching is given to students who have completed all program requirements, except student teaching, prior to the Summer session.

471 Practicum in Child Development (3-12) Supervised practicing working with children and families in early childhood settings. Prereq: Admission to the Child Development major or the Early Childhood Education licensure program and consent of the instructor. May be repeated. Maximum 12 hours. Satisfaction/No Credit only.

475 Day Care Administration (3) Theories, methods, and materials for administrators of early childhood education programs; writing funding proposals, staff selection, financial management, recruiting and enrolling children, supervision, evaluation, public relations, communications, 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.

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 internship requirements, Community Service Pod, including CFS 405 and HS 380. Satisfaction/ 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 for future professionals. Prereq: 351 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 6 hours.

CHINESE (249)

131-132 Elementary Chinese I,II (5,5) (Same as Asian Languages 131-132.)

231-232 Intermediate Chinese I,II (5,5) (Same as Asian Languages 231-232.)

311-312 Chinese Literature in English Translation (3,3) (Same as Asian Languages 311-312.)
### Classics (257)

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits (3)</th>
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<tbody>
<tr>
<td>201 Introduction to Classical Civilization (3) Introduc...</td>
<td>3.0</td>
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<tr>
<td>221 Early Greek Mythology (3) Archaic Greek...</td>
<td>3.0</td>
</tr>
<tr>
<td>222 Classical Greek and Roman Mythology (3) Use of myth in...</td>
<td>3.0</td>
</tr>
<tr>
<td>232 Archaeology and Art of Ancient Greece (3) Survey of Greek...</td>
<td>3.0</td>
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<tr>
<td>233 Archaeology and Art of Etruria and Rome (3) Survey of the...</td>
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### Cinema Studies (251)

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<th>Course Title</th>
<th>Credits (3)</th>
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<tbody>
<tr>
<td>235 Introduction to Cinematography as Art (3) Same as Art Media Arts 235.</td>
<td>3.0</td>
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<tr>
<td>236 Introduction to Video Art (3) Same as Art Media Arts 236.</td>
<td>3.0</td>
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### 300 Mass Communications Research Methods (3) Social science research methods, especially sample surveys, used by communications media. Applications to both internal decision-making and to external communication in media. Prereq: Journalism 200, or Advertising 350, or Broadcasting 310 or 320, or Speech Communication 390, or consent of instructor. (Same as Legal Studies 300.)

### Comparative Literature (260)

<table>
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<tr>
<th>Course Title</th>
<th>Credits (3)</th>
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<tr>
<td>203 Cross-Cultural Perspectives in World Literature (3) Literary perspectives and values in different time periods and cultures approached from an international context and including an introduction to the theory, methods, and objectives of comparative literature. Variable content. Writing-emphasis course.</td>
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### Comparative and Experimental Medicine (262)

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<th>Course Title</th>
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<tr>
<td>411 Undergraduate Research Participation (1-3) Experience in active biomedical research projects under supervision of faculty. Students in premedicine and other biology majors may conduct their own research projects within designated areas. Prereq: Junior or senior standing and consent of instructor. May be repeated with consent. Maximum 9 hours.</td>
<td>3.0</td>
</tr>
</tbody>
</table>
102 Introduction to Computer Science (4) Problem solving and algorithm development. Organization and characteristics of modern digital computers with emphasis on developing good programming habits, building abstractions with procedures and data, and programming in a modern computer language. Students who have received credit for 140 or 160 may not also receive credit for 102 without consent of instructor.

140 Data Structures (4) Advanced problem solving and algorithm development, structured programming, data structures and applications, I/O techniques, lists, queues, trees, algorithms, files. Prereq: 102. 3 hour lab required.

160 Computer Organization (4) Number systems, Boolean algebra, combinational and sequential circuits, registers, processor functional units and control, pipelining, memory and caching, stored program computing, memory management, computer system organization, assembly language programming. Prereq: 102, 3 hour lab required.

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

300 Scripts and Utilities (1) Practical tools available under Unix to enable students to become more efficient in performing labs and research projects. Topics to be covered: shell, script languages, awk, perl, python, make, rcs, jgraph, gcc/cpp/ purify/quantify. Prereq: 140 or consent of instructor. Satisfactory/No credit grading.

302 Fundamental Algorithms (3) Design, analysis, and implementation of fundamental algorithms, such as sorting and searching, and their data structures. Prereq: 140 and 160. 3 hour lab required


340 Foundations of Software Engineering (3) Principles of analysis and design of information systems. Principles of program design and verification, formal object-oriented methodology, design and analysis tools. Prereq: 140, 160, Math 301. 3-hour lab required.

360 Systems Programming (3) Introduction to user-level systems programming; file control, process control, memory management, system utilities, network programming. Prereq: 302. 3 hour lab required.

368 Programming Languages and Systems (3) Language paradigms (procedural, functional, object-oriented, logic), language design and implementation issues and language issues related to parallelism. Prereq: 302.

370 Introduction to Scientific Computing (3) The design, implementation, and applications of numerical algorithms for solving problems in science and engineering. Emphasis on program design, including data structures, computational techniques, scientific computing environments, and high-performance software packages. Prereq: Mathematics 241 or 251. 3 hour lab required.


420 Advanced Topics in Machine Intelligence (3) Topics such as 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, distributed computing, 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.

493 Independent Study (1-15) Special project in area of student’s primary interest. Directed by Computer Science faculty member, jointly with student’s faculty advisor. Intended for students with a specific project to pursue in conjunction with a faculty member. Project may be from a department other than Computer Science in which case a faculty member from the appropriate department will help oversee the project. May be repeated. Maximum 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.

COUNSELOR EDUCATION AND COUNSELING PSYCHOLOGY (267)

205 Student Development (1-3) Practice in acquiring knowledge and skill in areas such as interpersonal relations, career decision-making, communication and self-awareness. Individual and small-group format. May be repeated. Maximum 6 credit hours. S/NC grading.

206 Facilitation of Technical Work Teams (3) Psychological and cultural dynamics of technical work team performance. Supervised experience in leading work teams. For engineering students: advanced level of graduate work. Prereq: 441 or 341 and 442 or 342.

212 Career and Personal Development (3) Systematic approaches to facilitating career development and life planning. F, Sp

215 Learning Skills and Study Systems (3) Approaches to enhancing academic performance through study skills, efficient reading and understanding of personal factors.


364 Motor Pool Field Work (3) Capstone experience for the Engineering Communication and Performance Minor. Includes instruction, field work, and supervision. Satisfactory/No Credit grading only. Prereq: CEP 260 and Engineering student, sophomore level or above.

404 Special Topics (1-3) Instructor initiated course offered at convenience of the department on various topics of current interest. Contact department for listing of topics to be covered. May be repeated. Maximum 15 hours. E


410 Sex Role Development: Implications for Education and Counseling (3) Theories and research concerning the development of sexual role and its relevance in educational and counseling settings. (Same as Women's Studies 410.) F, Su

431 Personality and Mental Health (3) Perspectives of mental health with applications to other social institutions.

439 Independent Study (1-15) Independent study in an 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.

DANCE (274)

101 Practicum: Dance Production (1) Supervised technical and production 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 technique. May be repeated. Maximum 6 hours.

CULTURAL STUDIES IN EDUCATION (271)

290 Human Motor Behavior (3) Theories and principles of human motor behavior; psychological factors related 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.)

302 School and American Society (3) Historical, philosophical and social perspectives on contemporary educational issues. F, Su

321 History of Sport and Physical Activity in Western Culture (3) Study of sport, physical activity, and leisure from ancient Greek period to modern times, illustrating historical role in western culture. Provides background for growth of sport in education, and explores how most modern collegiate divisions, bearing a myriad of titles, developed. Prereq: Progression to the major or consent of instructor.

356 Motor Development (3) Evolution of human motor behavior within the context of structural/functional changes, and with the respect to psychological, sociological, and social-psychological factors related to and/or affecting motor performance/learning; analysis of changes in motor performance and underlying attributes across lifespan with applications to physical development and mental periods. Prereq: Progression to major or consent of instructor.

364 Contemporary Issues in African-American Education (3) (Same as African-American Studies 364.)

372 Philosophy of Sport (3) Theories of reality and value as they apply to sport with emphasis on ethical issues. Prereq: Progression to major or consent of instructor.

405 Sociology of Sport (3) (Same as Sociology 405.)

451 Education in Cultural Perspective (3) Contribution of anthropological concepts to understanding of educational processes; major conceptual frameworks; selected ethnographic research on process of schooling. F

466 Motor Development Laboratory (3) Application of selected perceptual-motor development, movement education, and pedagogical concepts to performance assessment and motor task/lesson design and presentation to normally developing preschool or primary grade children. Participation in intra- or interdisciplinary research projects. Prereq: Progression to major or 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.
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 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 minors or with consent of instructor. May be repeated. Maximum 12 hours.

330 Modern: Level II (2) Instruction and practice in intermediate modern dance styles and techniques. Available to 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. Prereq: 240 or consent of instructor.

380 Special Topics (1-3) Selected disciplinary or professional areas of dance. May be repeated.

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

415 Teaching Creative Dance for Children (2) Theory, methods, materials and practical experience in the presentation and integration or creative dance in grades K-6. A mini-teaching experience is involved in this class.

420 Jazz: Level III (2) Instruction and practice in advanced jazz and musical theater dance styles and techniques. Available to minors or with consent of instructor. May be repeated. Maximum 16 hours.

430 Modern: Level III (2) Instruction and practice in advanced modern dance techniques. Available to minors or with consent of instructor. May be repeated. Maximum 16 hours.

440 Composition I (2) Composition I (2) Choreographic skills emphasizing the basic techniques and concepts of dance composition. This course focuses on the choreography of solos and duets. Prereq: 4 hours credit in upper level modern dance technique (330 or 430) or approval of instructor.

445 Composition II (2) Choreographic skills emphasizing the advanced techniques and concepts of dance composition. This course will focus on the choreography of group work and the technical aspects of production. Prereq: 440 or approval of instructor.

480 Dance History through the 19th Century (3) Survey of the dance of various societies and cultures from prehistory 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.

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 mini-teaching experience. 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.

EARLY CHILDHOOD EDUCATION (279)

410 Early Childhood Special Education Foundations (3) Introduction to the field of early childhood special education including the nature of disabling conditions; theoretical perspectives in the field; legislation; policies and procedures used in the field. Prereq: Admission to Teacher Education Program.

422 Early Childhood Teaching Methods (6) Methods and materials for teaching in early childhood classrooms focusing on K-4th grade. Emphasis on holistic integrative approaches to precurricular development and presentation. Prereq: Pre-K-4th licensure program and admitted to Teacher Education.

445 Early Childhood Education: Program Development and Teaching in Kindergarten (3) Curriculum planning, classroom organization, and teaching practices for teaching young children; relationship of kindergarten to total elementary school. Prereq: Admission to Teacher Education Program.

471 Early Childhood Special Education (6) Assessment, instruction and practice in early childhood special education. Prereq: Admission to Teacher Education Program.

472 Field Experience in Early Childhood Special Education (2-5) Placement in educational settings serving young children with special needs. Provides experience in assessment, curriculum planning and teaching. Prereq: Admission to Teacher Education Program. May be repeated. Maximum 5 hours.

ECOLOGY AND EVOLUTIONARY BIOLOGY (278)

202-203 Ecology and Evolutionary Biology Colloquium (1, 1) Weekly discussions of current topics in ecology, behavior, and evolutionary biology including undergraduate research and career opportunities, for declared and potential departmental majors. Course familiarizes students with the content of the department and introduces them to department faculty and resources. S/NC only. Prereq: Biology 101-102 or equivalent.

240 Human Anatomy (4) Gross and Microanatomy of the human. Credit may not be applied toward Ecology and Evolutionary Biology major. Prereq: Biology 101 or 102 or 130 or 140 or equivalent introductory biology course. 3 hours lecture, 3 hours lab.

305 Evolution and Society (3) Issues and controversies surrounding the teaching and learning of evolution in America today. May not be applied to Ecology and Evolutionary Biology major. Prereq: General Biology or Anthropology 110 or consent of instructor. Writing emphasis course. (Same as Anthropology 305.)

350 Comparative Vertebrate Biology (4) Origins, phylogeny, and functional anatomy of invertebrates. Laboratory involves dissection of shark, cat, and selected other vertebrates. 2 hours and 2 labs.

360 Comparative Invertebrate Biology (4) Origins, phylogeny, and functional anatomy of invertebrates with emphasis on diversity of life forms and adaptions to specific local environments. 2 hours and 2 labs.

370 Ethology and Sociobiology (3) Basic concepts in the evolutionary approach to behavior, including applications to psychology, the social sciences, and the humanities. (Same as Psychology 370.)

380 General Entomology (3) Introduction to insects: basic structure, physiology, behavior, evolution and classification of insect orders. 2 hours and 1 lab.

400 Undergraduate Research (1-2) Research projects under the direction of a faculty member. Prereq: prior consent of instructor. May be repeated for a maximum of 8 hours, but a maximum of 4 hours may be applied toward the Biology major.

402 Practicum in Ecology and Evolutionary Biology (2) Participation in individualized practical application of ecology, behavior, and evolutionary biology in community, government, and industry. Prereq: Biology 140, 240, 250 and prior consent of instructor.

407 Senior Honors Thesis (3) Written preparation and oral presentation of faculty-supervised student research. Prereq: Admission to honors program in EEB and EEB 400 or equivalent.

409 Perspectives in Ecology and Evolutionary Biology (3) Forefront considerations of ecology, behavior, and evolutionary biology. Emphasis on current developments for applications, including societal and economic impacts and ethical issues involved. Prerequisite: An advanced course in general biology. An oral presentation and a refereed library-research essay are required.

411-412 Minicourse in Ecology and Evolutionary Biology (2) Selected advanced topics in ecology, behavior, and evolutionary biology, concentrated in time and subject matter. Consult departmental listing for topics offered. Prereq: As announced. May be repeated for credit but a maximum of 4 hours may be applied toward the departmental major.

419 Science as Method (3) The dynamic process of scientific discovery, as opposed to a static body of knowledge. Topics included will be comparisons of biological, ecological, and social sciences, and pseudoscience. Successful and unsuccessful science, the ethics of scientific research, and the philosophical aspects of the scientific enterprise. Implications for teaching and writing about science will be covered. Prereq: An introductory science or philosophy course, or consent of instructor. (Same as Botany 419 and Philosophy 419.)

431 Plant Ecology (3) (Same as Botany 431.)

446 Introduction to Oceanography (4) Basic oceanography, including physical, chemical, geological and biological processes and patterns. Emphasis on oceanic subsystems such as upwellings, polar oceans, hydrothermal vents, gyres, coral reefs, estuaries, and coastal regions. Field trip to coast required. Prereq: General Biology and Chemistry 120, 130; Biology 250 recommended.

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.)


461 Special Topics in Organismal Biology (3) Evolution, ecology, biogeography, ecology, evolution, and anatomy of selected animal and plant taxa. Prereq: Biology 250 or consent of instructor.

470 Aquatic Ecology (3) Introduction to the physical- chemical nature of inland waters with description of biotic communities and their interrelationships. Prereq: Chem- istry 120-130 and Biology 250. 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 250 or consent of instructor. 2 hours and 2 labs.

475 Field Ornithology (2) Intensive one week field course intended to introduce students to the behavior, ecology, and field identification of birds. Prereq: Biology 250 and consent of instructor. Sp

484 Conservation Biology (3) Application of principles and techniques of ecological research to conservation of biological diversity at genetic, population, community, and ecosystem levels. Prereq: Biology 240, 250.

490 Undergraduate Seminar (1-3) Student oral presenta- tions of topics related to developmental and working concepts of ecological and evolutionary theory. All majors are encouraged to enroll. Coreq: Upper division standing in the biology major. May be repeated for a maximum of 2 hours credit.

493 Independent Study (1-15) Independent study under the direction of a faculty member. Consent of instructor required. May be repeated for up to 15 hours. A maximum of 3 hours may be applied to major. F, Sp, Su

499 Evolutionary Ecology (3) (Same as Botany 499.)
ECONOMICS (283)

201 Introductory Economics: A Survey course (4)
Theory of consumption behavior, theory of firms, 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, production and prices, and of behavior of firms in perfect competition, monopolistic and imperfectly competitive markets, input prices, income distribution, welfare and general equilibrium. Prereq: 201.


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

323 Economic Development (Third World) (3) Overview of the international economic issues facing developing countries and other emerging markets. Theories of growth and policies used to promote economic improvement. Prereq: 201 or permission of instructor. Writing-emphasis course.

331 Government and Business (3) Antitrust and regulatory economics, problems in regulation and social control of business organization, oligopoly models. Prereq: 201.

341 Survey of Labor Economics (3) Overview of labor economics, problems in regulation and social control of business organization, oligopoly models. Prereq: 201.


361 Regional and Urban Economics (3) Overview of regional differences. Theory of industrial and agricultural location and human migration, economic basis for land use patterns, central places, and urban form, regional and urban structure, growth, and methods of analysis, examination of urban problems. Prereq: 201.


400 Special Topics (3) Topics vary. Prerequisites determined by department each time course is offered. Numerical grade is given to law students. May be repeated when topic varies. Maximum 9 hours. Prereq: 201.

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

415 Western Economics Thought Since the 18th Century (3) Methods of study of doctrinal origin. Origins and evolution of major doctrines: classical and neoclassical economics, economics of Keynes and his followers, triangular and circular relationships in the second half of 20th century. Major writing requirement. Prereq: 201 or equivalent and consent of instructor. Not available for graduate credit in History. (Same as History 415).


436 Economics of Health and Health Care (3) Medical care and health status; demand for medical care and insurance; physician and hospital supplies; government provision of services and insurance; regulation of health care markets. Writing emphasis course.

462 Economics of Resources and Environmental Policy (3) Economic analysis of environmental policy and allocation of resources. Benefits and costs of development of natural resources and impacts of growth on environment. Prereq: 201. Writing-emphasis course.

471 Public Finance: Optimal Government Functions and Expenditure Analysis (3) Problems of collective consumption, external effects, public investment, social decision making. Prereq: 201. Writing-emphasis course.

472 Public Finance: Taxation and Intergovernmental Relations (3) Individual taxes and tax system, non-tax sources of revenue, fiscal federalism. Prereq: 201. Writing-emphasis course.

482 Introduction to Mathematical Economics (3) Application of basic mathematical tools (e.g. calculus, matrix algebra, etc.) to major topics of economic theory. Prereq: Economics 311 with a grade of B or better, Mathematics 141-142 or 147-148.

482 Economics Off-Campus Study (1-6) Satisfactory, No Credit grading only. Prereq: Consent of instructor.

493 Independent Study (1-3) Opportunity for qualified students to pursue topics of special interest. Prereq: Senior standing. 3.0 GPA in economics courses, and consent of instructor. Maximum total credit 3 hours.

499 Analysis of Economic Problems (3) Study of the effects of economics on modern society and the practice of economics from a value oriented perspective. Students will integrate learning from all fields of economics and other disciplines where appropriate, and work as teams to prepare solutions of selected economic problems facing modern society. Prereq: Senior standing and completion of Economics 311, 313 and six other hours of upper division economics. Writing emphasis course.

EDUCATION (289)

100 Special Topics (1-3) Study in selected disciplinary or professional areas represented in the College of Education. Topics to be determined as needs/issues are identified and as resources are available to support the course.

EDUCATIONAL PSYCHOLOGY (310)

210 Psychosocial Issues in Human Development (3) Understanding and application of the psychology of human development to teaching/learning process in educational settings. Primarily for students entering teaching or Human Services. Prereq: 201, Writing-emphasis course.

215 Learning Skills and Study Systems (3) Approaches to enhancing academic performance through study skills, efficient reading and understanding of personal factors.

401 Professional Studies: Applied Educational Psychology (2) Application of concepts, principles, techniques and models from Educational Psychology to facilitate student learning and creation of effective classroom environments. Prereq: Admission to Teacher Education.

404 Special Topics (1-3) Instructor initiated course offered when a concentration of the department on various topics of current interest. Contact department for listing of topics to be covered. May be repeated. Maximum 15 hours. E

431 Personality and Mental Health (3) (Same as Counselor Education and Counseling Psychology 431.)

432 The Disadvantaged Student: Psychosocial Perspectives (3) Theory and research regarding etiology, psychosocial behavior and appropriate interventions.

460 Self-Management in the Helping Professions (3) Applications of self-management strategies to career, social, educational, and human services helping professions and their clientele. Prereq: Introductory course in psychology or permission of instructor. Su

493 Independent Study (1-15) Independent investigation of problems in educational and counseling psychology. May be repeated. Maximum credit 15 hours. E

ELEMENTARY EDUCATION (322)

325 Teaching Science and Social Studies in Elementary Schools (3) Materials for teaching science and social studies in elementary and middle schools. Teaching approaches common to both fields including inquiry methods, teaming and group assessment approaches. For BS Education students only. Prereq: Admission to Teacher Education Program. F, Sp

326 Teaching Language Arts/Reading in Elementary and Middle Schools (3) Language and language development applied to teaching of oracy (listening-speaking) and certain aspects of literacy (reading process/readiness and writing). Includes methods and materials. For BS Education students only. Prereq: Admission to Teacher Education Program. F, Sp

351 Laboratory and Field Studies in Elementary Education (1-2) Simulated and actual experiences in which students apply concepts and skills from professional methods courses in a variety of school settings and levels. May be repeated. Maximum 3 hour. Prereq: Admission to Teacher Education Program. Coreq: Elementary Education 422. Satisfactory/No Credit grading only. E

356 Elementary and Middle School Teaching Laboratory Experience (1) Simulation and micro-teaching experiences to develop planning skills and give feedback to students relative to their ability to apply learning to school settings. Prereq: Admission to Teacher Education Program. Coreq: 422.

421 Elementary and Middle School Science and Social Studies Instruction (3) Methods and materials for teaching science and social studies. Development of functional and critical thinking skills. Prereq: Admission to Teacher Education Program. F, Sp

422 Elementary and Middle School Teaching Methods I (6) Methods and materials for teaching elementary and middle school reading, language arts, science, social studies and mathematics. Emphasis on planning, implementation and evaluation of integrative learning experiences. Prereq: Admission to Teacher Education Program; must be taken prior to Professional Year Internship. S

424 Studies in Elementary Education (1-3) Variable topics on teaching in Early Elementary (K-3), Middle Elementary (4-8), and Skills (K-8). Prereq: Admission to Teacher Education Program. Prereq: Consent of instructor. May be repeated. Maximum 8 hours. E

429 Language Arts/Reading Instruction in Elementary and Middle Schools (3) Language and language development as applied to teaching of oracy (listening-speaking) and certain aspects of literacy (reading process/readiness and writing). Not open to students who have had recent course in language arts methods. Prereq: Admission to Teacher Education Program. F, Sp

ENGINEERING AEROSPACE (018)

201 Aerospace Seminar (1) An overview of aerospace engineering with lectures, laboratory demonstrations, and visits. Aerospace history, aircraft and space flight fundamentals, propulsion techniques, wind tunnel testing, biomedical issues in aviation and space flight. S/NC. Prereq: Sophomore Standing in Aerospace Engineering or consent of instructor. F

341 Fluid Mechanics I (3) Introduction to fluid flow concepts; hydrostatics; development of mass, momentum, and energy conservation laws in integral and differential form; dimensional analysis and similarity; viscous laminar and turbulent flows in pipes; introduction to boundary layers. Prerequisites: ME 231, Mathematics 341. F, Sp, Su

345 Aerospace Engineering Instrumentation and Measurement (3) Fundamentals of measurement systems; standards; dynamic characteristics of instruments; statistical data treatment; transducers; signal conditioning; strain, pressure, temperature measurements. Coreq: ME 363. Prereq: AE 341, EE 301. F, Sp
ENGINEERING CHEMICAL (226)


210 Introduction to Chemical Engineering Thermodynamics (3) Introduction to the laws of thermodynamics, state functions, and their conceptual basis. Ideal systems, the gas law, Raoult's law, and deviations from ideal behavior (fugacity and activity). Introduction to the principles of statistical mechanics and quantum mechanics. Prereq: EF 102, Chem 130. Coreq: Math 142.

240 Fluid Flow and Heat Transfer (4) Force, energy and mechanical energy balances; flow in tubes, piping systems, packed and fluidized beds; pumping and metering; steady and unsteady state heat conduction; heat transfer in tubes and heat exchangers; radiation. Prereq: 200; Mathematics 241; Coreq: Mathematics 231.

301 Chemical Engineering Data Analysis (3) Analysis of experimental data; identification of system extrems; statistical properties of samples; empirical modeling of processes; statistical process control; optimization techniques. Prereq: Math 200 or permission of instructor.


340 Mass Transfer and Separation Processes (3) Stagewise operation; application of analytical, graphical and computer methods to design of stagewise separations columns. Differential equations-application of analytical and computer methods to the design of diffusive processes. Applications include gas absorption, distillation, extraction, humidification, on exchange and membrane separations. Prereq: 200. Coreq. 230.

360 Process Dynamics and Control (4) Introduction to process modeling and industrial control system design. Mathematical tools for characterizing dynamic behavior of processes; theory and practice of operating and controlling such systems. Includes laboratory work. Lab. Prereq: 240, Mathematics 231.

380 Seminar (1) Presentation and discussion of topics in the practice of chemical engineering. Satisfaction/No credit.


407 Honors Seminar (1) Presentations and discussions on topics from current research and development. Prereq: Consent of instructor. Satisfaction/No Credit grading. May be repeated once.

408 Honors Seminar (1) Presentations and discussions on topics from importance to chemical engineers. Prereq: Consent of instructor. Satisfaction/No Credit grading. May be repeated once.

410 Chemical Engineering Laboratory II (3) Laboratory investigations of mass transfer and chemical reaction phenomena in chemical engineering. Prereq: 310, 450, or permission of instructor.

415 Computer Applications in Chemical Engineering (3) Introduces computer solution of chemical engineering problems. Focus on the application of personal computer programs. Includes flow sheet simulators, statistics, spreadsheets, graphics and process modeling. Prereq: 340.


445 Separation Process Technology (3) Multicomponent distillation theory and computer simulations; humidification; specialized technologies, including membrane separation, crystallization, dialysis, adsorption, ion exchange, etc. Prereq. 340.

447 Honors: Transport Phenomena (3) Overview of momentum, heat and mass transfer processes, the analogies, differential and macroscopic balances, applications involving molecular diffusion, including simultaneous mass transfer and chemical reaction. Prereq. 340 and consent of instructor.

450 Chemical Reactor Fundamentals (3) Homogeneous and heterogeneous reaction kinetics; idealized homogeneous reactor models, both for closed and flow systems; complex reactor simulations; identification of scaling parameters; catalyst effectiveness factors and conversion in fixed bed catalytic reactors. Prereq. 240, 340, 360, 301.

467 Honors: Engineering Internship in Process Control (4) Internship option for engineering students with practical experience in industrial problems in process dynamics and control. Directed by faculty and engineers from host company. Prereq. 360 and consent of instructor.

477 Honors: Applied Process Automation Laboratory (3) Interactive flexible batch continuous processes to automation systems. Top down analysis with bottom up implementation, hierarchical structures and object oriented concepts are used to design solutions including human-machine-interfaces. Workstations with modern industrial equipment provide an interactive graphical and visualization environment. Prereq. 360 and consent of instructor.
Chemical properties and processes in natural and industrial systems. Emphasis on microbial metabolism, inorganic and organic geochemistry, and biogeochemical cycles. Prerequisites: 120, 231 and Physics 231.

312 Materials of Construction (3) Physical and mechanical properties of materials used in construction. Behavior of materials and structures under load. Testing standards, and their use for determining the properties of concrete, ferrous and nonferrous metals, wood and plastics. Two lectures and 1 lab. Prerequisite: 205. 261.

330 Introduction to Soil Behavior (4) Physical and mechanical properties of soil, theory of soil classification, compaction, soil strength, seepage, and effective stress. Consolidation theory, time rate of settlement, shear strength of sands and clays, and analysis of homogenous slopes. 3 hours, 1 lab. Prerequisite: 205. 361.

351 Transportation Engineering I (3) Transportation problems and perspectives, rural and urban; use of systematic planning processes; development of alternatives and the evaluation of civil engineering projects. Civil engineering decision-making and impact analysis. Design of transportation terminals, airports, parking, etc. Prerequisite: 210.

352 Transportation Engineering II (3) Introduction to design, construction, maintenance, and operation of various transportation modes, their guideways and termini, and public transportation systems. Prerequisite: 351. 361.

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. Prerequisite: 261.

380 Water and Waste Treatment (3) Principles of unit operations for physical, chemical, and biological treatment of water, wastewater, and solid wastes. Prerequisite: Junior standing and 390.

390 Hydraulics (4) Basic laws and properties of incompressible fluids. Units and dimensional analysis; drag forces; continuity, energy, and momentum equations; pipe flow; flow measurement; open channel flow and culverts; pump characteristics. 3 hours, 1 lab. Prerequisite: 205 or Biosystems Engineering 243; Engineering Fundamentals 102; Nuclear Engineering 253.

395 Hydrology (3) Concept of hydrologic cycle; weather patterns; precipitation measurement and distribution, abstractions, and runoff; storm hydrograph and peak flow analyses, including design floods; reservoir and channel routing; rainfall and streamflow frequency analyses; groundwater flow. Prerequisite: 390.

400 Senior Design Project (3) Open-ended, comprehensive project emphasizing team approach to design process. Includes project formulation, site plan, project management, drawings and specifications, cost estimating, and various project components typical of those faced by practicing civil engineers. Prerequisite: Must be taken during the last semester of attendance. Summer graduates must take during their last preceding term.

401 Review of Engineering Fundamentals (1) Review of selected topics covered on the Fundamentals of Engineering exam. Emphasis is on those topics relating to Civil and Environmental Engineering. Letter grade only. Prerequisite: Must be taken during the last 15 hours of the curriculum.

409 Special Topics (1-3) Recent developments and current practice in civil and environmental engineering through field internship and/or self-study. Prerequisite: Consent of instructor and department head. May be repeated. Maximum credit 6 hours.

421 Portland Cement Concrete Mix Design and Analysis (3) Aggregate properties and tests, tests of portland cement and concrete, mix design methods, admixtures, and nondestructive testing. Two lectures and 1 lab. Prerequisite: 321.

431 Geological Engineering (3) Influence of geologic origin and history on the engineering characteristics of rocks and soils; geology in the planning, design and construction of civil engineering projects. 2 hours lecture, 1 hour lab. Prerequisite: 330 or consent of instructor.

435 Foundation Engineering (3) Fundamentals of geotechnical aspects and analysis of soil structure systems; subsurface investigation; design of shallow and deep foundations on rock. Lateral earth pressure and retaining structures. Prerequisite: 330.

440 Civil Engineering Systems Design and Management (3) Methods of data analysis and modeling of civil engineering systems to enhance resource allocation for specific application to problems of transportation, environmental, water resources, structural analysis materials. Emphasis on microcomputer applications. Prerequisite: Senior standing and Statistics 251.

442 Construction Methods and Equipment (3) Fundamentals operations in construction and equipment selection and productivity; concrete and steel construction; and construction contracts and economics. Prerequisite: 330.

451 Highway Engineering (3) Design, construction, operation, and maintenance of highway facilities; includes application of various engineering principles and techniques to planning and design of highway facilities; covers both geometric and pavement design. Prerequisite: 210, 251, 352.

452 Traffic Engineering (3) Characteristics of driver, vehicle, and roadway and their interaction; traffic studies; basic considerations of traffic; evaluation of safety and control, lighting, capacity analysis, roadway safety analysis and design. Prerequisite: 210, 251, 352.

453 Airport/Railroad Planning and Design (3) Airport master planning and railroad engineering. Runway configuration, airfield capacity, geometrics and terminal layout. Letter grades only. Prerequisite: 210, 251, 352.

462 Analysis of Framed Structures (3) Vertical and lateral force resisting systems; gravity loads due to dead, live, and snow loads; lateral loads due to earthquake and wind actions; computer-aided analysis; building modeling and analysis. Prerequisite: 361.

471 Introduction to Structural Design (3) Selection of rolled structural steel beams; design of structural steel members for axial tension and compression loads, reinforced concrete beams; use of standard specifications. Prerequisite: 361.

472 Steel Design (3) Design of plate girder and composite beams; consideration of members subjected to combined stresses; design of a typical framed building structure. Prerequisite: 361.

474 Reinforced Concrete Design (3) Design of continuous beams, floor slabs, columns with combined axial loads and bending, footings; and design for torsion. Prerequisite: 471.

480 Water and Waste Transport (3) Theory and design of water distribution systems, and wastewater collection systems. Prerequisite: 390.

485 Principles of Hydrogeology (3) (Same as Geology 485.)

486 Air and Waste Management (3) Principles of air quality management, solid waste management and hazardous waste management. Review of regulations, environmental standards, technology, and control technologies including treatment and disposal. Prerequisite: 390 or Chemical Engineering 200 or Agricultural Engineer 243.

490 Water Resources Project Design (3) Development of multipurpose reservoir and dam project, including data acquisition; spillway and outlet works design; earthen and gravity dam stability analyses; drains and filters; maintenance and operation of earthen dams; safety concepts, including dam break analyses. Prerequisite: 390, 395.

495 Water Resources Development and Management (3) Institutional framework including: water law, evaluation procedures for comparing and selecting among water resource development alternatives, multi-objective planning, principles of engineering economics, benefit-cost analysis, and cost allocation methods; environmental impact assessment procedures; decisions using risk-based methods; case studies. Prerequisite: Senior standing.

ENGINEERING CIVIL AND ENVIRONMENTAL (254)

205 Professional Development I (2) Introduction to civil engineering specialties, history, and in civil engineering. Professional responsibility, communication, and organizations. Prerequisite: Sophomore Standing.

210 Engineering Measurements (4) Mensuration through application of surveying techniques; theory of errors and precision, standards of horizontal, vertical, and angular measurements and control; construction surveys; route surveys through vertical and horizontal curves; introduction to GPS and GIS. 3 hours, 1 lab. Prerequisite: Sophomore Standing.

261 Structural Analysis I (3) Reactions; shear and moment diagrams; forces in trusses; uniaxial stress and strain; area moments of inertia; torsion. Prerequisite: Engineering Fundamentals 102.

305 Professional Development II (1) Legal and ethical responsibilities, professional organizations, career planning, and leadership. Prerequisite: 205.

321 Materials of Construction (3) Physical and mechanical properties of materials used in construction. Behavior of materials and structures under load. Testing standards, and their use for determining the properties of concrete, ferrous and nonferrous metals, wood and plastics. Two lectures and 1 lab. Prerequisite: 205. 261.

330 Introduction to Soil Behavior (4) Physical and mechanical properties of soil, theory of soil classification, compaction, soil strength, seepage, and effective stress. Consolidation theory, time rate of settlement, shear strength of sands and clays, and analysis of homogenous slopes. 3 hours, 1 lab. Prerequisite: 205. 361.

351 Transportation Engineering I (3) Transportation problems and perspectives, rural and urban; use of systematic planning processes; development of alternatives and the evaluation of civil engineering projects. Civil engineering decision-making and impact analysis. Design of transportation terminals, airports, parking, etc. Prerequisite: 210.

421 Electric Energy Systems (3) Structure and operation of the electrical energy grid; load flow; economic load dispatch; stability analysis; electrical machines; power and energy. System security, protection, control; stability analysis. Includes Level 1 design projects. Prereq: 316, 325.


423 Electric Machines (3) Principles of electromechanical energy conversion for both dc and ac machines. Design of electromagnetic devices. Includes Level 1 design projects. Prereq: 316, 325.

431 Operational Amplifier Circuits (3) Linear and non-linear active circuits using operational amplifiers. Includes operational, instrumentation, isolation, buffered, precision, and power operational amplifiers. Includes Level 2 design projects. Prereq: 316, 325.

432 Electronic Amplifiers (4) Feedback amplifier principles; wideband linear amplifier; low-noise preamplifier; power audio amplifier; linear regulated power supply design and switching regulator principles. Includes laboratory experiments and design projects. Prereq: 316, 325, 332.

441 Digital Communications (3) Quantization and pulse code modulation. Binary and M-ary signaling, spectra of line codes, link budget analysis, binary communication channel in the presence of noise, matched filtering and equalization, synchronization, and multiple access techniques. Includes Level 1 design projects.

442 Communication System Design (4) Application of communication theory to system design. Development of communication systems. Simulation and evaluation of communication systems. Includes simulation software and applications. Includes Level 2 design projects. Prereq: 441.

443 Antennas and Propagation (3) Introduction to antenna theory including fundamental antenna concepts and parameters (directivity, gain, patterns, etc.) and signal propagation. Theory and design of linear and loop antennas, arrays, and other simple antennas. Includes Level 1 design projects. Prereq: 316, 341, 342.

446 Electromagnetic Compatibility (3) Principles of interaction between electromagnetic energy and electrical devices. Parameters and coupling for dipole, biconical, and log-periodic antennas. High frequency effects in circuit elements, radiated and conducted emissions and susceptibility. Crosstalk, shielding, electrostatic discharge, and EMC regulations. Includes Level 1 design projects which require laboratory work. Prereq: 316, 341, 342.

450 Computer Systems Architecture (3) Architecture and design of microcomputer systems with microprocessors or microcontrollers. Instruction set architectures, software interfaces, processor structures, memory hierarchy, interfacing. Includes Level 1 design project which require laboratory work. Prereq: 355.

452 Design of Digital Systems and Computers (4) Considerations for design and application of digital systems and computers; includes embedded systems concepts and design, CPU issues, interrupt structures, and I/O channels. Includes Level 3 design projects which require laboratory work. Prereq: 451.

453 Computer Network Design (3) Principles of computer networking and software design of network protocol with an emphasis on the internet and TCP/IP protocol suite. Includes Level 2 design projects which require laboratory work. Prereq: 206.

471 Introduction to Pattern Recognition (3) Introduction to statistical decision theory, adaptive classifiers, and supervised and unsupervised learning. Students will engage in hands-on implementation of several techniques of current interest such as feature recognition, speech processing, remote sensing, data mining and bioinformatics. Includes Level 1 design projects. Prereq: 316. Non-majors require consent of instructor.

472 Introduction to Digital Image Processing (4) Mathematical foundations and practical techniques for digital manipulation of images, including image enhancement, restoration, compression and color and image processing. Includes Level 2 design projects. Prereq: 316. Non-majors require consent of instructor.

481 Power Electronics (3) Principles and characteristics of power semiconductor devices, single-phase and polyphase phase-controlled converters, converter control, ac voltage controller. Includes Level 1 design projects and laboratory work. Prereq: 316, 325, 332.

482 Power Electronics Circuits (4) Voltage-fed inverters, PWM principles, control of inverters, dc-dc converters, rectifiers, machine drives, resonant converters, step motor drives, brushless dc machine principles. Includes Level 2 design projects which require laboratory work. Prereq: 481.

491 Special Topics (3) Topics relating to basic design and computer control systems; may not be repeated to satisfy senior requirements for graduation. Maximum three hours. Prereq: Completion of all junior EC courses or consent of instructor. Includes Level 1 or Level 2 design projects which may require laboratory work.

495 Senior Seminar (1) Current topics in electrical engineering. May not be repeated. Prereq.: Completion of all junior EC courses or consent of instructor. Satisfactory/No Credit or letter grade.

ENGINEERING FUNDAMENTALS (323)

100 Engineering Skills Development (1-3) Exercises in the skills and tools essential to the practice of engineering. Credit cannot be used toward any engineering degree. May be repeated. S/NC grading.

101 Engineering Approaches to Physical Phenomena (6) Engineering problem solving emphasizing mathematical modeling and structural application of natural sciences to the solution of engineering problems. Includes Level 1 design projects and presentations, coverage of professionalism and engineering perspective. Introduces the application of natural science to engineering problems. May include measurements and estimation, force, free-body diagrams, vectors, static equilibrium, Newton’s laws, and conservation laws. Coreq: Math 130 or placement in Math 141 or higher. Prereq: 100.

102 Fundamentals of Engineering Mechanics (6) Fundamentals of statics and particle dynamics with applications to engineering problems. Graphical and mathematical modeling software applications, team design and projects. Topics to be covered include vectors, forces and moments, equivalent force systems, free-body diagrams, equilibrium, frames, trusses, friction, kinematics, and dynamics. Application of these techniques in areas of interest such as face recognition, speech processing, remote sensing, data mining and bioinformatics. Includes Level 1 design projects. Prereq: 101. Coreq: Math 141 or higher. Sp

103 Review of Engineering Fundamentals (3) A review of statics and dynamics for students needing additional work after taking EF 102. Credit cannot be used towards any engineering degree. S/NC grading. Prereq: Consent of instructor.


201 Engineering Design Workshop (2) Introduction to the design process. Project experiences involving working in teams, oral presentations, and written reports. Prereq: Consent of instructor.
301 Engineering Career Planning and Placement (1)
Fundamentals of seeking professional employment, including resume construction, interview preparation, contacting employers, and business etiquette. Focus on the entire job-seeking process. Intended for last-term juniors. Satisfactory/No Credit. Sp

ENGINEERING INDUSTRIAL (556)

202 Work Methods and Measurement (3)

300 Engineering Data Analysis and Process Improvement (3) Engineering statistical methods as applied to modern engineering and business environments. Process improvement, inferences about process output and behavior, and measurement systems. An introduction to the use of designed experiments to improve processes. Design components of the use of teams to provide hands-on experiences, enhance learning, and develop skills in group dynamics. 2 hours lecture, 1 lab. Prereq: Statistics 251 or Mechanical Engineering 345 or consent of instructor. F, Sp

301 Operations Research in Industrial Engineering (3)
Integrated system modeling concepts; linear mathematical programming models including the original simplex procedure, transportation and assignment problems, revised simplex procedure, dual simplex procedure, parametric linear programming (sensitivity analysis), and integer linear programming. Prereq: Math 200 and 231. Coreq: 300. F, Sp

304 Introduction to Human Factors Engineering (3)
Human capabilities and limitations affecting work, work place, and work environment design. Emphasis on human factors methodology, human input requirements, human output characteristics, and the design of human-machine interfaces. The analysis of stress on performance, environmental factors such as noise, lighting, and atmospheric conditions. Focus on designing the task to fit the person. Prereq: Junior standing and consent of instructor. F, Sp

306 Simulation (3) Simulation of complex production processes using current simulation software. Introduction to modeling concepts, flowcharting, random number generation, simulation models, model validation, logic, and computer animation. Utilization of statistical tools to analyze inputs and outputs to simulation models. Lab components of design and implementation of new simulation processes. Focus on simulation modeling concepts for relevant industrial engineering case studies. 2 hours lecture, 1 lab. Prereq: 202, 301. F, Sp, Su

310 Operation Research in Industrial Engineering II (3)
Network models including PERT-CPM, introduction to nonlinear programming, dynamic programming, stochastic processes, and queuing theory. Basic decision analysis techniques and their applications in engineering practice. Prereq: 301. Sp


403 Production Facilities Design and Material Handling (3) Design of production facilities including plant layout and analysis and planning for overall moving, packaging and storing. Design of material handling equipment including crane, forklift, conveyors, and material handling systems. Component provides hands-on experiences in development and application of optimization techniques. Prereq: 306. Coreq: IE 401. Sp

404 Industrial Engineering Applications (2) To enhance and integrate knowledge gained in undergraduate industrial engineering education by providing experience in preparing senior industrial engineering students for their transition to professional practice. Prereq: Term of expected graduation or consent of instructor. F, Sp

405 Engineering Economic Analysis (3) Introduction to engineering economy and its application in engineering practice. Time-value of money and discounted cash flow techniques. NPV, IRR, profitability index, net present value, internal rate of return, and issues involving design options, equipment selection, break-even points, and similar situations. Cost estimating and cost analysis techniques and inflation. Analyzing uncertainty in economic estimates using nonprobabilistic techniques. Prereq: Junior standing or consent of instructor. F, Sp, Su

421 Information Systems Analysis and Design (3) Systems engineering approach to analysis, design, development, and implementation of systems of information. Emphasizes informational requirements of industrial engineering systems. Involves utilization of relevant software packages. 2 hours lecture, 1 lab. Prereq: Senior standing of consent of instructor. F

422 Senior Industrial Engineering Problems Analysis (3) Application of Industrial Engineering to field assignments in local organizations, including problem definition, analysis, design, and implementation. Prereq: Expected term of graduation or consent of instructor. F, Sp, Su


440 Process Improvement Through Planned Experimentation (3) Review of fundamentals of continuous improvement, advanced statistical process control techniques, and strategies for short production runs. Use of experimental design techniques to improve processes, including single and multiple-factor designs, blocking and confounding, and related techniques. Full factorial designs are compared to fractional designs to balance experimental efficiency with loss of information. Lab components include statistical and simulation software to provide hands-on experiences. 2 hours lecture, 1 lab. Prereq: 300. Sp

483 Introduction to Reliability Engineering (3) (Same as Nuclear Engineering 483).

484 Introduction to Maintenance Engineering (3) (Same as Nuclear Engineering 484.)

494-495 Special Topics in Industrial Engineering (1-3) 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. F, Sp, Su

ENGINEERING MATERIALS SCIENCE (638)

201 Introduction to Materials Science and Engineering (3) Correlation of atomic structure and microstructure in the various materials, including physical and chemical properties of engineering significance. Prereq: Chemistry 130. E

290-291 Materials Seminar (0) Professionalism, ethical considerations, safety, patents, product liability, field trips to material science conferences at a global societal context, teamwork, contemporary issues, life-long learning. May be repeated. Satisfactory/No Credit grading only. Credits (290 or 291 must be taken each semester by all MSE majors starting with the second year of residence.)

300 Materials Laboratory Procedures (1) Thermometry, sample preparation for microscopic examination; word processors and word processing usage, data analysis, report writing. Prereq: 201

301 Materials Science and Engineering Data Analysis (3) (Same as Chemical Engineering 301.)

302 Mechanical Behavior of Materials I (3) Tensile testing of metals, ceramics and polymers; deformation mechanisms and the various crystal structure types, non-crystalline and non-crystalline forms; rubber elasticity, viscoelastic behavior, creep, time-temperature superposition in polymers; fatigue. Prereq: 201, 303, or consent of instructor. F, Sp


320 Diffusion and Phase Transformations (4) Thermodynamics of phase equilibria; nucleation, growth, and short range order in crystalline and amorphous phases. Diffusion, melting, and solidification; phase diagrams. Diffusion mechanisms and phase boundary analysis. Prereq: 201, Chemistry 473. Sp

340 Principles of Polymer Materials (3) Synthesis of chemical and synthetic polymers; physics of polymers; molecular characterization; crystalline and glass transitions; crystallization kinetics; mechanical properties; rheology and processing. Prereq: 201. F

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

370 Materials Processing (3) Application of fundamental principles of mass and energy transfer, heat and mass transfer, chemical thermodynamics and kinetics to the processing of materials and manufacturing of products. Utilization of techniques (e.g., casting, extrusion, rolling, powder processing, coating techniques, etc.) as studied as examples of processing technologies. Elementary ideas of process measurement and control. Prereq: 201, 320, ChE 200, and ChE 240, or equivalent. Sp

380 Materials Selection in Design (3) Systematic materials selection in design. Review of material properties, use of property selection charts and indices. Materials selection, with and without shape constraints, for materials processing in design; case studies. Sources of material property data, utilization of material data bases. Fracture analysis, hardness, and storage of materials. This includes office layout and material science as work methods improvement techniques and processes. Human work design criteria for the improvement of work methods. Stopwatch time studies, predetermined time systems, and work sampling are used to establish, document, and maintain time standards, standard data, and allowances. Learning curves and wage payment systems. Design of systems. Secretaries. Principles of work study. Developing Fundamentals 101. Coreq: Statistics 251. F, Sp

404 Principles of Metallic Materials (3) Property control through composition, mechanical and thermal processing; ferrous and nonferrous alloys; alloy selection. Prereq: 201.

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


421 Mechanical Behavior of Materials II (3) Description of stress and strain; linear elastic constitutive equations; isotropic and anisotropic moduli in various materials; yield criteria; brittle fracture; crazing; plastic strain constitutive equations, forming operations and limit criteria. Prereq: 302, ES 321, sophomore mathematics.

422 Chemical Process Metallurgy (3) Application of chemical thermodynamics to metallographic processes. Ferrous and nonferrous pyrometallurgical refining, slag-metal equilibria, solidification, gas-metal processing. Prereq: 303. F

423 Introduction to Ceramic Matrix Composites (3) Characteristics of composites, including ceramic matrix composites; macromechanics and materials design overview of fabrication techniques; microstructural characterization and mechanical property evaluation; current and potential applications. Prereq: 201 and ES 321, or equivalent.
ENGINEERING NUCLEAR (716)

200 Introduction to Nuclear and Radiological Engineering (1) Topics related to nuclear and radiological engineering. Satisfactory/No Credit.


301 Fundamentals of Nuclear and Radiological Engineering (3) Nuclear systems, radiation interactions, radiation detection, health physics, cross sections, flux, reactor theory. Prereq: Physics 223, Math 211.

304 Nuclear and Radiological Engineering Laboratory I (3) Radiation detection and counting instrumentation, counting statistics, half-life and decay schemes, gamma spectrometry, heat transfer experiments. Prereq: 342. Coreq: 345.

305 Energy Transport (3) Development of differential and integral energy conservation; conduction and convection heat transfer including numerical methods; application to nuclear reactor fuel elements, reactor cores, and heat exchangers. Prereq: 203.

342 Thermal Science (3) Fluid statics; conservation equations of mass, momentum, and energy; applications to fluid machinery; heat transfer processes, heat conduc- tion, thermal radiation, free and forced convection. Prereq: NE 203 or ME 331.


360 Reactor Systems and Safety (3) Safety and oper- ating limits of nuclear steam supply system components; NRC regulations; accident analysis and mitigation. Prereq: 342.

400 Senior Seminar (1) Current topics related to nuclear and radiological engineering including ethics, contemporary issues, and commitment to life-long learning. Prereq: Senior standing. Satisfactory/No Credit.

403 Nuclear and Radiological Engineering Laboratory II (3) Cross section measurements, diffusion properties of neutrons, shielding, dynamics and controls, alpha and beta spectroscopy, radiation fields and dosimetry. Prereq: 304.

404 Nuclear Fuel Cycle (3) Topics related to nuclear fuel cycle including, mining, milling, fabrication, in-core management, reprocessing, waste disposal, regulatory and radiation health issues and requirements. Prereq: 470 or equivalent.

406 Radiation Shielding (3) Types of radiation sources, fundamentals of gamma ray and neutron attenuation, bolometric analysis, approximating methods of shield design, discrete ordinates, and Monte Carlo. Prereq: Physics 252.

421 Introduction to Nuclear Criticality Safety (3) Fundamentals of nuclear criticality safety; criticality accidents; safety standards; overview of experiments, computational methods, and applications. Prereq: 301.

431 Radiation Protection (3) External and internal dosimetry, biological effects of radiation, radiation detection, radiation risk assessment. Prereq: 301.
471 Nuclear Reactor Theory II (3) Thermal spectrum computational methods: heterogeneous effects in fast and thermal spectra; considerations in reactor core design; equations that relate thermal and neutronic variables; fuel management calculations and reactivity control methods. Prereq: 470.
472 Nuclear System Design (4) First order design and analysis of a nuclear system, interface with nonnuclear aspects of system design including system reliability and economic class project. Prereq: 470.

483 Introduction to Reliability Engineering (3) Probabilistic failure models, parameter estimation (maximum likelihood, Bayes techniques), Model identification and comparison, accelerated life tests, failure prediction, system reliability, preventive maintenance and warranties. Prereq: Senior standing or consent of instructor. (Same as Mechanical Engineering 483 and Industrial Engineering 484 and Mechanical Engineering 484)
484 Introduction to Maintenance Engineering (3) Principles of maintenance and reliability engineering, and maintenance management. Topics include information extraction and analysis, machinery measurements, rotating machinery diagnostics, nondestructive testing, life prediction, failure models, lubrication oil analysis, establishing a predictive maintenance program, and computerized maintenance management systems. Prereq: Senior standing in engineering and consent of instructor. (Same as Materials Science and Engineering 484, Industrial Engineering 484 and Mechanical Engineering 484)
494 Special Topics in Nuclear Engineering (3) Problems related to recent developments and practice. Prereq. Senior standing, consent of instructor. May be repeated.
495 Special Topics in Radiological Engineering (3) Problems related to recent developments and practice. May be repeated. Prereq. Senior standing on consent of instructor.
498 Research (1-3) Research related to recent developments in nuclear and radiological engineering. May be repeated up to a maximum of 3 credits. Prereq. Consent of department head. Satisfactory/No Credit.

ENGLISH (339)
Completion of the English composition requirement is prerequisite for all other English courses.
101 English Composition I (3) Strategies for written argumentation, critical reading, and discussion; emphasis on audience analysis, the invention and arrangement of ideas, and revision for style and mechanics; typical assignments include formal essays, in-class essay exams, journals, quizzes and collaborative projects; two individual conferences required. Students wishing additional help with writing should also register for English 103. A, B, C, NC grading.
102 English Composition II (3) Critical strategies for writing and reading about literature; emphasis on the documented essay, library skills, and continued development of style and voice; typical assignments include analytical essays, annotated bibliographies, journals, quizzes, and collaborative projects; two individual conferences required. Students wishing additional help with writing should also register for English 104. Prereq: 101. A, B, C, NC grading.
103 Writing Workshop I (1) Self-paced Writing Center tutorial for students wanting additional instruction while enrolled in English 102. Prereq: having ACT English and composite scores at or above 26 (or SAT verbal/composite scores at or above 650/1260). Grading scale and workload are same as in regular sequence though course proceeds at an accelerated pace. Prereq: individual instruction in critical reading and literary interpretation, and research methods. May include the study of a long work of literature in addition to readings in nonfiction, short fiction, poetry, and drama. Students receiving grade below B in 102 will complete their work in English Composition by taking 102. Students receiving a grade of A or B will complete their freshman English requirements by choosing 102, a sophomore literature course in the English Department, or 355, A, B, C, NC grading.
104 Writing Workshop II (1) Self-paced Writing Center tutorial for students wanting additional instruction while enrolled in English 102 or students advised to enroll by their 102 instructors. Individual instruction in critical reading and in developing and documenting the research paper. To receive credit, students must participate at least two hours per week and must also pass the 102 class in which they are currently enrolled. Prereq: English 101. S/N grading.
118 Honors English Composition (3) For students whose ACT English and Composite scores are at or above 28 (or SAT verbal/composite scores at or above 700/1360). Grading scale and workload are same as in regular sequence though course proceeds at an accelerated pace. Prereq: individual instruction in critical reading, literary interpretation, and research methods. May include the study of a long work of literature in addition to readings in nonfiction, short fiction, poetry, and drama. Students receiving grade below B in 118 will complete their work in English Composition by taking 102. Students receiving a grade of A or B will complete their freshman English requirements by choosing 102, a sophomore literature course in the English Department, or 355, A, B, C, NC grading.
121 Academic English for Non-Native Speakers (4) Development of English academic literacy, including reading, writing, vocabulary, and grammar as well as some attention to listening, oral presentation, and pronunciation. Required of all non-native English speaking students. Prereq: placement based on the English Placement Exam. Examination a need for work in English structures, reading, or writing. Admission to this course by the English Placement Exam only. Meets four hours a week: A, B, C, F grading.
131 Composition for Non-Native Speakers of English I (3) Paragraph and composition organization and development with emphasis on informative and persuasive writing. Includes grammar and mechanics. Individual conferences. Admission to this course 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.
211 Literature of the Western World I: Ancient, Medieval, and Renaissance (3) Writing-emphasis course.
222 Literature of the Western World II: Ancient, Medieval, and Renaissance (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. (Same as African and African-American Studies 233.)
237 Honors American Literature I: Colonial Era to the Civil War (3) Enriched section of 231 designed for students with a 3.25 or higher GPA.
238 Honors 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 mode of artistic expression for the perceptions of reading of poems. Writing-emphasis course.
252 Introduction to Drama (3) Critical tools for perceptive reading of play texts. Writing-emphasis course.
253 Introduction to Fiction (3) Fiction from the eighteenth through the twentieth centuries, emphasis on critical techniques for judging works of fiction. Writing-emphasis course.
254 Themes in Literature (3) Study of important themes in English, American, and World literatures. Some sample themes are religion, crime, law, ecology, science, exploration, revolution, colonization initiation, education. Multiple perspectives. Writing-emphasis course. See Timetable for topic.
263 Introduction to Creative Writing (3) Practice in writing poetry and fiction, combined with study of models and techniques. Writing-emphasis course.
281 Introduction to Film Studies (3) Selected world cinema of the present. Critical techniques necessary for understanding and analysis of narrative cinema. Basic elements of film expression and contours of film history. Writing assignments. (Same as Cinema Studies 281.)
295 Business and Technical Writing (3) Principles of written communication in science and business.
301 British Culture to 1660 (3) English literature in the context of parallel developments in art, architecture, music, and social and intellectual history. Writing-emphasis course.
302 British Culture: 1660 to present (3) English literature in the context of parallel developments in art, architecture, music, and social and intellectual history. Writing-emphasis course.
306 Introduction to Shakespeare (3) May not be used by English majors to fulfill the pre-1800 literature course requirement.
331 Race and Ethnicity in American Literature (3) Examines the role of ethnic and racial identity in the development of the literature of the United States. (Same as African and African-American Studies 331.)
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 and aesthetics since 1899, with emphasis on cultural evaluations and the principles of writing “American”. Writing-emphasis course. (Same as African and African-American Studies 333.)
334 Film and American Culture (3) American films and other works of art and social documents. Relationship between the medium of film and American culture in the twentieth century. (Same as Cinema Studies 334 and Cinema Studies 334.) Writing-emphasis course.
355 Rhetoric and Writing (3) Strategies of writing on personal and academic subjects. Discussion of student and professional writing. Open to sophomores with instructor’s consent.
360 Technical and Professional Writing (3) For students who need to sharpen their technical communication skills. Writing of definitions, process descriptions, proposals, abstracts, executive summaries, and major reports. Prereq: Junior standing in student’s major or consent of instructor.
363 Writing Poetry (3) Introduction to writing poetry.
364 Writing Fiction (3) Introduction to writing novels and short stories.
365 Writing Drama and the Screenplay (3) Introduction to writing one-act and full-length plays, as well as screenplays.
371 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 approaches—traditional, descriptive, and generative-transformational—to the structure of modern English. (Same as Linguistics 372.)
376 Colloquium in Literature (3) Methods and objectives of literary study; conferences to plan student’s program in major. Prereq: Sophomore literature package or consent of instructor.
381 Introduction to Folklore (3) Essential terms and concepts in modern folklore/folk-life studies. Emphasis on North American materials: folklore, folksong, myth, legend, proverbs, riddles, superstitions, dance, games, and architecture. (Same as American Studies 381.)

389 Literature of the English Bible (3) Types of literature in the Bible: legend, folklore, history, biography, poetry, prophecy, apocalyptic. (Same as Religious Studies 389.)

390 Junior-Senior Honors Seminar (3) Seminar for students admitted to English honors program. Variable content determined by instructor, but usually focussed on a particular literary period, genre, or issue. Enrollment limited to 15. See Director of Undergraduate Studies in English for details.

401 Medieval Literature (3) Reading and analysis of selected medieval literary masterpieces in modern English. Writing-emphasis course. (Same as Medieval Studies 405.)

402 Chaucer (3) Reading and analysis of the Canterbury Tales and Troilus and Cressida in Middle English. (Same as Medieval Studies 406.)

404 Shakespeare I: Early Plays (3) Shakespeare’s dramatic achievement before 1601. Selected plays from the romantic comedies (e.g., Twelfth Night), the English histories (e.g., 1 Henry IV) and early tragedy (e.g., Hamlet).

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 dramatic romances (e.g. The Tempest).

406 Renaissance Drama (3) English theatre between 1590 and 1640. Representative plays by Shakespeare’s contemporaries (e.g., Marlowe, Webster, Jonson).

409 Spenser and his Contemporaries (3) Principal achievements in prose and poetry of the 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, Walton).

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, nonfiction, prose, satire, romance, or epic 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 Early Victorian Literature (3) May include poetry by Tennyson and the Brownings; prose by Carlyle, Newman, and Mill.

419 Later Victorian Literature (3) May include poetry by the Pre-Raphaelites, Arnold, Hopkins, and Hardy; prose by Arnold, Ruskin, and Carroll; plays by Gilbert and Wilde.

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

421 Modern British Novel (3) Authors such as Joyce and Woolf through contemporary British fiction writers.

422 Women Writers in Britain (3) Emphasis on the literary consciousness and works of women writers in Britain. Course content will vary. Authors covered may include Marie de France, Margery Kempe, Aemilia Lanyer, Elizabeth Cary, Aphra Behn, Frances Burney, Mary Wollstonecraft, Mary Shelley, George Eliot, Virginia Woolf, and Doris Lessing. May be repeated. Maximum 6 hours. (Same as Women’s Studies 422.)

431 Early American Literature (3) From the earliest texts to 1830, including exploration and discovery, Native American, colonial, revolutionary, and early national works.

432 American Romanticism and Transcendentalism (3) Prose and poetry of the American Renaissance, from c. 1830 to the end of the Civil War. Includes writers such as Cooper, Poe, Hawthorne, Melville, Emerson, Thoreau, Stowe, Douglass, Whitman, and Dickinson.

433 American Realism and Naturalism (3) Literature from the War to World War I, including such writers as Twain, Howells, James, Jewett, Free- man, Crane, and Norris.

434 Modern American Literature (3) World War II 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 frontier 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 theories from 1845 to the present, including Langston Hughes and the Harlem Renaissance, Richard Wright and Gwendolyn Brooks, writing by Black women, international Black literature in English, and Black American autobiography. (Same as African and African-American Studies 443.)

451 Modern British and American Poetry (3) From Yeats and Frost to Auden, Stevens, and more recent poets.

452 Modern Drama, 1880-1945 (3) Survey of British, American, and international drama from the advent of realism to the end of World War II. (Same as Comparative Literature 452.)

453 Contemporary Drama (3) Survey of British, American, and international drama since World War II.

454 Twentieth-Century International Novel (3) Fiction in English translation from such writers as Kafka and Camus through contemporary authors. (Same as Comparative Literature 454.)

455 Persuasive Writing (3) Focuses on writing and analyzing persuasive texts in public, private, and academic contexts. Prereq: 355 or consent of instructor.

456 Contemporary/Postmodern Literature (3) Studies in literature written after World War II. Content will vary. May be repeated once with permission of instructor.

460 Technical Editing (3) Editing technical material for publication. Principles of style, format, graphics, layout, and production management. Prereq: 360 or consent of instructor.

462 Writing for Publication (3) Principles and practices of writing for publication. Dissertations, theses, articles, and reports in science and technology. Prereq: 360 or consent of instructor.

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

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

466 Writing, Layout, and Production of Technical Documents (3) Principles of design for desktop publishing and production of various documents to be incorporated into a professional portfolio. Prereq: 360 or consent of instructor.

470 Special Topics in Rhetoric (3) Topics vary. May be repeated with consent of instructor. Maximum 6 hours. Prereq: 355 or consent of instructor.

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

472 American English (3) Phonological, morphological, and syntactic characteristics of major social and regional varieties of American English, with attention to their functions, and impacts on American culture. 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) Introduces major issues surrounding teaching ESL/EFL, including political implications of teaching cultural pluralism. Prereq: 371 or 372 or Linguistics 200 or consent of instructor. (Same as Linguistics 474.)

475 Teaching English as a Second or Foreign Language II (3) Covers issues, principles, and techniques in teaching grammar, speaking, pronunciation, reading, and writing in ESL/EFL. Includes observations and teaching practice in ESL classes and development of ESL materials and tests. Prereq: 474. (Same as Linguistics 475.)

476 Second Language Acquisition (3) How humans learn second languages. Examines theoretical models and research on such issues as differences between first and second language acquisition, cognitive factors in second language acquisition; learner variables; sociocultural factors; and implications for second/foreign language instruction. (Same as Linguistics 476.)

477 Pedagogical Grammar for ESL Teachers (3) Aspects of English syntax and morphology presenting difficulties for non-native learners of English. Basic and complex sentence structures; the noun and article system; verb tense, aspect, and modality, and complementation. (Same as Linguistics 477.)

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

480 Fairy Tale, Legend, and Myth: Folk Narrative (3) Study of forms of folk narrative: normally includes Grimm’s, Andersen’s, Irish, English, Appalachian, African, and Native American tales.

481 Studies in Folklore (3) Topics vary. 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, Pope, Austen, Thoreau, Whitman, Faulkner, Lawrence, Baldwin, or Morrison. May be repeated. Maximum 6 hours.

483 Special Topics in Literature (3) Topics vary. 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.

485 Special Topics in Language (3) May be repeated. Maximum 6 hours with consent. (Same as Linguistics 485.)

486 Special Topics in Criticism (3) Content varies. Special topics in theoretical and practical approaches to British and American literature. May be repeated with consent of department. Maximum 6 hours.

489 Special Topics in Film (3) Content varies. Particular directors, film genres, national cinema movements, or other topics. May be repeated with consent of department. Maximum 6 hours. (Same as Cinema Studies 489.)

490 Language and Law (3) Language in the Anglo-American legal process: focus on differences between spoken and written language; lexical and syntactic ambiguity; pragmatics; speech act analysis; and the language rights of linguistic minorities. Prereq: 371 or 372 or consent of instructor. (Same as Legal Studies 490 and Linguistics 490.)

491 Foreign Study (1-15) Seizing, studying, and writing about drama as performed in New York City.

492 Off-Campus Study (1-15) Seizing, studying, and writing about drama as performed in New York City.
493 Independent Study (1-6) Tutorial in subjects not adequately covered in regular courses. May be repeated for a total of 6 hours credit.

495 Introduction to Rhetoric and Composition (3) Introduction to the historical, theoretical, and empirical modes of inquiry in rhetoric and composition and their implications for the teaching of composition. Prereq: 355 or consent of instructor.

496 The Rhetoric of Legal Discourse (3) Applying basic principles of rhetoric to legal materials. Writing, position papers, briefs, and memoranda, students learn issue identification and argument. Critical reading and discussion of both professional and student writing. Introductory legal research techniques. No prior legal knowledge necessary. Prereq: 355 or consent of instructor. (Same as Legal Studies 496.)

498 Senior Honors Paper (3) Second semester of English honors program. Working individually, the student produces a substantial creative or critical project under the direction of two members of the professorial staff. Prereq: 398.

499 Senior Seminar (3) Intensive study in an author, period, genre, or of problems in language, literary history, or theory. Content varies, but all sections address problems of value from an interdisciplinary perspective. Substantial research paper required. Restricted to majors who have completed 15 upper-division hours in English. Writing emphasis course. Capstone experience.

ENGLISH EDUCATION (340)

141 Efficient Reading and Study Skills (2) Improvement of reading comprehension and rate, intensive vocabulary enrichment, study skills as they relate to content area subjects. Satisfactory/No Credit grading only. F, Sp.

453 Adolescent Literature (3) Literature written or appropriate for adolescents. 

456 Teaching Speech and Drama, Grades 7-12 (3) Purposes, techniques, materials and evaluation for teaching Speech and Drama in secondary schools. Required for certification in Speech. Prereq: Admission to Teacher Education Program. F

459 Teaching English in the Secondary School (3) Techniques of teaching composition, language, and literature. Prereq: Admission to Teacher Education Program. F

460 Teaching Reading and Literature in the Secondary School (3) Teaching basic reading skills and literature. Sp

461 Developing Reading Skills in Content Fields (3) Teaching reading and study skills in content areas of the school program. Extensive assessment of textbooks. Emphasis on middle school and high school. F, Sp, Su

ENTOMOLOGY AND PLANT PATHOLOGY (341)

201 Impact of Insects and Plant Diseases on Human Societies (3) Insects and plant diseases have had a significant influence on human history, culture, and lifestyles. The science of entomology and plant pathology help humankind understand the impact of insects and plant pathogens on these dimensions of human existence. The development of strategies to capitalize on the beneficial aspects of these organisms will also be explored. 3 hours L, O, C

305 Forest Protection (3) Biological, economic and legal consideration of fire, pathogens, insects, vertebrates, wind, and pollutants in the forest ecosystem. One or more all day or overnight field trips may be required. Prereq: FWF 311, or consent of instructors. 2 hours and 1 lab. (Same as Forestry 305.) Sp, E

313 Plant Pathology (3) Introduction to the microorganisms and environmental conditions causing disease in plants. Structure and roles of important plant pathogens. Host-pathogen interactions, disease development and principles of control. Prereq: Six hours of Biological Science. 2 hours and 1 lab. (Same as Botany 313.)

321 Economic Entomology (3) Structure, life history, habits and control of over one hundred of important insect pests of farm, garden, orchard and household. Prereq: Six hours of Biological Science. 2 hours and 1 lab. Sp, E

325 Veterinary Entomology (3) Identification, biology and control of arthropods that attack major livestock species. Introduction to entomology, methods of insect control, major pest species groups and problems associated with specific host production operations. Prereq: Biology 122 or equivalent. 2 hours and 1 lab. F, E

410 Diseases and Insects of Ornamental Plants (3) Symptoms, identification and management of diseases and insect pests that affect plants in ground covers, nursery, and landscape environments. Prereq: 313 or 321 or consent of the instructor). 4 hours. Sp, A

ENVIRONMENTAL AND SOIL SCIENCES (345)

110 Introduction to Environmental and Soil Sciences (1) Invited speakers on current topics; career opportunities in the environment; field trip with departmental faculty. S/N/C grading. F

210 Introduction to Soil Science (4) Differences in soils; soil genesis, physical, chemical, and biological properties of soil; relation of soil to land use and pollution; soil management relative to tillage, erosion, moisture, supply, temperature, aeration, fertility and plant nutrition. Prereq: One semester chemistry. 3 hours lecture and one 2 hour lab. F, Sp

242 Soil Morphology (1) Intensive course involving descriptive, classifying and interpreting soils in preparation for regional and national soil judging contests. Prereq: Consent of instructor. May be repeated. Maxi- mum 4 hours. 1 hour and 1 lab. F, Sp

301 Professional Development (1) Techniques of effective self, professional, interpersonal and public speaking; ethics; interviewing and the job search. Prereq: Junior standing. Sp

324 Soil and Water Conservation (3) Investigation of hydrologic principles regarding soil and water conserva- tion. Topics include: hydrologic cycle, water quality, soil properties, erosion prediction and control, and tech- niques to protect natural resources. Prereq: 210. 2 hours lecture and one 2 hour lab. Sp

334 Soil Nutrient Management and Fertilizers (3) Influence of soil nutrients on plant growth and nutrient availability to plants. Management of inorganic and organic fertilizer materials and the determination of their fate in the soil-plant system. Nutrient management as it relates to agricultural sustainability and soil quality. Prereq: 210. 2 hours and 1 lab. Sp

355 Environmental Soil Biology (3) Biology and biochemistry of the soil environment as it applies to environmental and agricultural ecosystems. Topics include: microbial ecology, biogeochemical cycling of soil elements, soil quality and bioremediation. Prereq: 210 and Microbiology 210. Sp

434 Environmental Soil Chemistry (3) Composition and chemical properties of soils and processes that govern the fate and behavior of chemicals in the soil environment. Topics include: clay mineralogy; soil organic matter; mineral weathering and stabilization; surface chemistry; ion exchange, adsorption, and mo- lecular retention; oxidation-reduction; and soil acidity, alkalinity, and salinity. Prereq: ESS 210 and Chemistry 350 F

442 Soil Genes and Classification (3) Soil genesis and formation; observing and describing morphology of agricultural and forest soils; chemical and physical properties, classification. 3 weekend field trips. Prereq: EBS 210. 2 hours and 1 lab. F

444 Environmental Soil Physics (3) Basic understanding of soil physical properties and processes; practical experience in measurement and analysis of soil physical properties; methods of analysis related to agricultural, environmental, and engineering applications. Prereq: 210 and Physics 221 or equivalent.

446 Environmental Climatology (3) Study of atmo- sphere as environment. Physical, chemical and biologi- cal factors affecting earth environments; meteorological process affecting biosystems. Climatic change and the human impact on the atmosphere, consequences of climatic change and mitigation possibilities, microclimate, atmospheric pollution, extreme events and ozone depletion. Design and operation of weather information systems; auto- mated weather stations. Prereq: Agriculture and Natural Resources 290 or equivalent.

481 Capstone in Environmental and Soil Sciences (3) Integrative course in which students work individually and collaboratively to develop solutions for soil and water related problems. Writing and oral communica- tion emphasis course. Prereq: 434 and senior standing.

492 Internship (1-6) Supervised experience with a departmentally-approved employer. Student is respon- sible for many aspects of the job. Requirements include maintaining a daily log, supervisor evaluations, and a final report. May be repeated with a maximum of 6 hours credit. Prereq: Junior standing. S/N/C. F

493 Problems in Environmental and Soil Sciences (1-3) Special research problems in environmental sci- ences. May be repeated. Maximum 6 hours. Prereq: Approval of Department and Junior Standing. E

EXERCISE SCIENCE (347)

100 Orientation to Exercise Science (1) Overview of discipline and professional areas for incoming Exercise Science major. May be taken prior to admission to the Exercise Science major.

260 Exercise Science Practicum (1) First practicum experience to support and clarify career goals. Satisfac- tory/No Credit grading only. Prereq: 100.

276 Fitness for Life (2) Evaluation and discussion of factors leading to optimal health: cardiorespiratory func- tion, muscular strength and endurance, flexibility, low back function, nutrition, and stress. Emphasis on evalu- ation of current status with recommendations for change toward reasonable health-related goals. (Same as Physi- cal Education 276.)

322 Fitness Activities (2) Methods of instructing and leading fitness activities, including jogging, exercise to music, water activities, and fitness games. 1 hour lecture. 3 hour lab. Prereq: At least junior standing and progres- sion to the major.

325 Athletic Training Techniques (3) Prevention of athletic injuries through sound conditioning programs and practices; recognition and immediate treatment of inju- ries. Prereq: 332 and progression to the Exercise Science major or consent of instructor.

332 Applied Anatomy (3) Structure and roles of bones, joints and muscles in human movement and exercise; exercise related biomechanical principles. Prereq: Junior standing.

350 Disease and Injury: Epidemiologic and Demo- graphic Perspectives (3) Disease and injury mortality and morbidity patterns, trends, differentials and causes are examined from public health perspectives of population-based sciences of epidemiology and demography. Completion of college course in statistics or mathematics is recommended.

380 Special Topics (1-3) Study in selected disciplinary or professional areas of Exercise Science. May be repeated. Maximum of 6 hours. Prereq: Progression to the major.

411 Physical Activity for Special Populations (3) Nature of various disabilities and implications for physical activity programming. Course requirements include out- of-class practical work with individuals who have disabilities. Prereq: ES 332 Applied Anatomy or consent of instructor. Exercise Science majors, minimum cumu- lative 2.5 GPA.

412 Practicum in Adapted Physical Activity (1) Working with individuals in education or clinical settings, where an emphasis is placed on teaching gross and fine motor skills. Prereq: Either Core: 411 or consent of instructor.

414 Fitness Testing and Exercise Prescription (3) Relation of exercise to cardiorespiratory function, body composition, strength and flexibility, Measurement and evaluation of fitness in normal populations. Prereq: Biochemistry and Cellular Biology 230; Exercise Science majors, minimum cumu- lative 2.5 GPA.


426 Exercise Science Practicum II (1-6) Supervised experience in exercise/fitness areas. May be repeated for a maximum of 10 hours. Satisfactory/No Credit grading only. Prereq: Progression to the major and consent of instructor.
480 Physiology of Exercise (3) Lecture and class dealing with functions of the body in muscular work. Topics include physiological aspects of fatigue, training, and adaptation to environment. 2 lectures and 1 lab. Prereq: Biochemistry and Cellular and Molecular Biology 230 or 440. (Same as Biochemistry and Cellular and Molecular Biology 480.) Exercise Science majors, minimum cumulative 2.5 GPA.

490 Exercise Physiology/Fitness Internship (12-15) Full-time practicum in exercise/fitness at approved agency. Satisfactory/No Credit grading only. Prereq: 414, 442, 426, 480; progression to major with the consent of the instructor. May be repeated. Maximum 9 hours. Prereq: Consent of advisor and progression to the major. Satisfactory/No Credit grading only.

493 Directed Independent Studies (1-3) Independent study in a specialized area with Exercise Science. To be repeated. Maximum 9 hours. Prereq: Consent of Instructor and Department Head. Satisfactory/No Credit grading only. Prereq: 414, 442, 426, 480; progression to major with the consent of the instructor. May be repeated. Maximum 9 hours. Prereq: Consent of advisor and progression to the major. Satisfactory/No Credit grading only.

497 Honors Research Project (3-6) Senior research project done under supervision of a faculty member. Includes design of research project, writing proposal for institutional review board approval, data collection and analysis, and presentation of results. Project should be approved with two semesters of study remaining. Prereq: Senior standing.

FINANCE (349)
Accounting 202, Business Administration 201, and Finance 301 are prerequisite to all 400-level Finance courses.

201 Personal Finance (3) Financial planning, investing, managing assets, insurance, and retirement planning for nonbusiness majors. May not be used to satisfy Finance elective requirements. Offered as faculty resources allow.

280 Introduction to Real Estate (3) This course is designed to provide a detailed survey of the real estate market and its analysis. In particular, the course focuses on developing an understanding of the unique legal, institutional, and economic features of the real estate market. In addition, the basics of real estate financing, and investment analysis will be considered. This course may not be used to satisfy Finance elective requirements. (Same as Urban Studies 280.)


402 Special Topics in Finance (3) Junior and senior level elective topics to be announced prior to offering. Prereq: 301, Accounting 202, and Business Administration 201.

421 Investment Analysis (3) Principles and concepts of asset valuation in competitive and efficient financial markets. Basic analytical tools are developed and used to study valuation of different types of securities. Major writing requirement. Prereq: 301, Accounting 202, and Business Administration 201.

422 Portfolio Analysis and Management (3) Portfolio theory and evidence of behavior of security returns with a view to determining rational investment policy. Includes statistical analysis for risk and return of portfolios, portfolio evaluation and revision, capital market theory, and extensions of portfolio analysis. Prereq: 301, Accounting 202, and Business Administration 201.

430 Financial Markets (3) Role of short and long term financial markets in the process of capital formation and allocation. Theories and mathematics of interest rates in money and capital markets. Prereq: 301.


460 Advanced Topics in Financial Management (3) Contemporary issues in corporate finance, liquidity and current asset management, corporate growth and control, international finance, corporate investment and pension fund management. Prereq: 301, Accounting 202, and Business Administration 201.

470 Risk Management and Insurance (3) Identification, measurement and decision making with regard to insurance. Analysis of insurance risks facing financial institutions and identification of these risks in the most cost-efficient manner. Prereq: 301, Accounting 202, and Business Administration 201.


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 law applicable to real property. Limited partnerships and other joint ventures. Prereq: 301, Accounting 202, and Business Administration 201. (Same as Urban Studies 481.)

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. Court and administrative remedy of market failures. Impact of economic analysis of the effects of these markets on urban development. Prereq: (Same as Urban Studies 482.) (Same as Urban Studies 482.)

492 Off-Campus Study (3) Satisfactory/No Credit grading only. Prereq: Consent of Instructor and Department Head.

493 Independent Study (1-6) Letter grade only. Prereq: Consent of Instructor and Department Head.

FOOD SCIENCE AND TECHNOLOGY (390)
140 The Food Industry (3) Introduction to the food industry and the legal, economic, and social aspects of producing an adequate, safe food supply for national and international markets.

240 Field Observations in Food Processing (2) Observation of and familiarization with processing plants and their operations, as well as observation of different types of foods. Prereq: 140 or consent of instructor. 2 hours.

259 Evaluation and Grading of Dairy Products (2) Evaluation and scoring of milk, ice cream, cheddar cheese, cottage cheese, yogurt, and butter. Prereq: 140 or consent of instructor. 2 75-minute lectures/labs.

260 Meat Evaluation and Grading (2) Grading standards for quality and yield; principles for evaluating beef, pork and lamb, and application of standards for institutional meats. Practice grading, judging carcasses and cuts, and application of purchase specifications. F

301 Professional Development (1) Professional development requirements, resources and opportunities. Individual written and oral report and group discussion on careers and development opportunities. Prereq: Junior standing or consent of instructor.

340 Food Preservation and Packaging (3) Principles, methods and equipment used for preservation of foods. Prereq: 140 and 240 or consent of instructor. 2 hours.

401 Professional Food Science Communication (1) Individual reports and group discussion on current topics. May be repeated; maximum 3 credit hours. Prereq: Senior standing or consent of instructor.

410 Food Chemistry (4) Reactions of water, proteins, lipids, carbohydrates, minerals, enzymes, vitamins, and additives in foods. Prereq: Chemistry 110 or equivalent. Coreq: Biochemistry 310. 3 hours lecture and 1 lab.

420 Food Microbiology (2) Physical, chemical and environmental factors moderating growth and survival of foodborne microorganisms; pathogenic and spoilage microorganisms affecting quality of foods and their control. Prereq: Microbiology 210. Coreq: 429. F


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

432 Special Topics In Food Science and Technology (1-3) Topics of current interest to the food industry. May be repeated. Maximum 9 hours. Prereq: Consent of instructor. Letter grade or Satisfactory/No Credit grading. S

445 Application of Food Chemistry and Processing Principles (4) Interactions and functions of dairy, egg, cereal, and other plant-based ingredients in the production and storage of processed foods. Prereq: FST 340 and 410 or consent of instructor. 3 hours lecture and 1 lab.

452 Science of Dairy Foods (3) Science and technology of the processing of milk and its products. Prereq: 290, 310, 320-29, and 340 or consent of instructor. 2 hours lecture and 1 lab.

460 Meat Science (3) Carcass characteristics of meat animals, muscle structure and composition, cut identification, curing, freezing, and cookery. Prereq: 140 or consent of instructor.

469 Meat Science Lab (1) Slaughter and processing methods for beef, pork, lamb and poultry. Coreq: 460. 1 lab.

490 Food Laws and Regulations (3) Comprehensive examination of the laws and regulations designed to preserve the safety, wholesomeness, and nutritional quality of the United States food supply with an in-depth analysis and discussion of recent case studies and their impacts on laws and regulations. Core courses in Food Science and Technology will serve as an essential basis for understanding of material covered in this course. Prereq: 140; non-majors must obtain consent of instructor.

493 Practicum Experience in Food Science and Technology (1-12) Specialized research and demonstrations of interest under faculty direction. Field experience in supervised internship in the food industry. May be repeated; maximum 12 hours. Prereq: Consent of instructor. E

495 Quality Assurance and Sanitation Practices (3) Design and evaluation of a food processing operation to produce a safe and acceptable quality food product. Prereq: 310, 320, and 340 or consent of instructor.

FOREIGN LANGUAGE/ESL EDUCATION (394)
455 Teaching of Foreign Language, Grades 7-12 (3) Instructional methods, lesson planning, peer-teaching; materials for teaching Foreign Language and culture; evaluation techniques. Required for certification in modern foreign languages and Latin. Prereq: Completion or near completion of foreign language hours for certification and admission to Teacher Education Program. F

FORESTRY (396)
100 Forests and Forestry in American Society (3) Introductory course examining the role of forests in shaping American culture and society and exploring the evolution of the forestry profession in the North America. F
306 Forest Protection (3) (Same as Entomology and Plant Pathology 306.) Sp

314 Economics of Forest and Wildland Resources (2) Basic principles of forest resource economics: microeconomic applications in forestry; non-market valuation and analysis; financial analyses of private and public forest resource management decisions. Prereq: Economics 201, or consent of instructor. F

315 Forest Ecology (3) Ecological interactions in forests among tree species, other plant and animal species, and their environment; ecosystem classification; energy, nutrient, and hydrologic cycles; site quality. Perturbations and growth, survival and forest composition; forest succession. Fire ecology. Regeneration ecology through establishment and stand dynamics. Physiological ecology, ecological strategies, and adaptations of trees. Prereq: FWF 311. 2 hours and 1 lab. Sp

321 Wildland Recreation (3) Philosophical foundation of recreation; planning, development, and management of forest recreation resources; interpretation of forest resources. Overnight weekend field trips may be required. Prereq: English 102 and Speech 210 or 240 or consent of instructor. F


323 People and Forest Practices (2) Examination of how people, or the lack thereof, are affected by forest management practices. Case studies and field applications will concentrate on the wide variety of linkages that exist in society among people and forests. Application of basic skills of collaborative problem solving will be emphasized. Overnight field trips required. Letter grade only. Coreq: 305, 306, 322, 323, 326, 329, 330. Sp

324 Forest Resource Analysis (2) Growth and yield prediction; financial analysis of forest management alternatives; incorporating computer simulation, risk and uncertainty, and taxes into forest investment decisions, goal setting under multiple use concepts; valuation and appraisal of forest uses. Prereq: 314. Coreq: 305, 306, 322, 323, 326, 329, 330. Sp


329 Forest Resource Inventory (3) Tree, log and lumber scaling and grading; land inventory and stand mapping; volume estimation; Prereq: FWF 313. Coreq: 305, 306, 322, 323, 324, 329, 330. Sp


331 Wood Properties and Uses (2) Wood as a biological material; detailed examination of the woody cell wall; influence of environmental and site conditions on wood formation; physical and mechanical properties of wood and their relationship to its use as a building material; other uses of the woody cell wall to the properties; wood use in important commercial products; day field trip may be required. Prereq: Botany 110 or consent of instructor. F

332 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 use and interpretation of microscopic examination; student use of reference collection of wood samples; day field trip may be required. Prereq: Forestry, Wildlife and Fisheries consent of instructor. Coreq. 305 for Forestry majors. Sp

415 Forest Conservation Workshop (1-3) How forest biology, ecology and management relate to conservation issues; how current conservation issues can be integrated into the educational experience of the student. Directed study and student research in forest conservation educational strategies. Prereq: Consent of instructor. May not be taken by forestry or wildlife and fisheries majors. May be repeated. Maximum of 3 hrs. Su, F

420 Forest Resource Management (2) Introduction to forest-level management concepts from an economic perspective. Harvest determination; goal setting under multiple-use concepts; tax; classical approaches to regulation, linear programming and harvest scheduling; goal programming. Prereq: 314 and 324, or consent of instructor. F

421 Forest and Wildland Resource Economics (3) Provides functions, supply-demand and market analysis, non-market programs and projects; economic analysis and decision models; investment and financial analysis; management; forest products marketing. Prereq: 324 or consent of instructor. F

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: Senior standing or consent of instructor. F

423 Wildland Recreation Planning and Management (3) Planning processes, master and site planning, site design projects; management strategies, methods of visitor and recreation management; case studies. Weekend field trips may be required. Prereq: 321 and Junior standing in Wildland Recreation concentration, or consent of instructor. 2 hours and 1 lab. Sp

433 Wood Adhesives and Glued Wood Products (2) Theory of the problem; study of wood-substrate adhesive interface for bonding; principles of adhesion; wood adhesives; gluing of solid wood and composite wood products; process design and manufacture and/or 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. F

434 Wood Processing and Machining (2) Processing of wood including primary log breakdown and secondary processing into major products. Fundamentals of machining technology and types of cutting operations including sawing, boring, planing, veneer cutting, and laser machining; day field trip may be required. Prereq: 331 and 332 or consent of instructor. F

435 Wood Drying and Preservation (2) Discussion of wood-moisture relationships. Introduction to commercial wood drying equipment and practices. Proper use, specification, and disposal of preservative treated wood. Day field trips may be required. Prereq: 331 and 332 or consent of instructor. F

460 Wood Industry Survey (1) Industry descriptions and plant visitations to include sawmills, pulp and paper, plywood, furniture, floor manufacturing, and wood treatment. Day field trips may be required. Prereq: advisor or student sitting in class only for day field trips, 495 Internship in Wildland Recreation (1-6) Prereq: Senior standing or consent of instructor. F

500 Internship in Forestry (1-6) Internship in forest management, planning, and economics. Includes part-time employment or research experience. Prereq: approved by the advisor/instructor and the field supervisor. Prereq, student is responsible for field placement. One credit per all class meetings. May be repeated. Maximum 3 hours. Sp, Su, F

511 Introduction to Forestry, Wildlife and Fisheries (3) History of natural resources policies and practices; social perspectives and attitudes concerning natural resources and their management, ecological principles, current policies, social trends, and forest and wildlife resource use. Sp

250 Conservation (3) Use and abuse of wildland resources. Historical perspectives and current management of forests, wildlife, and fish of North America including aspects of outdoor recreation and pollution problems. Sp

311 Dendrology and Silvics of North American Trees (3) Identification, classification and nomenclature of important American trees and woody shrubs; forest associations; silvical characteristics of trees and stands as the basis for the practice of silviculture. Day-long field trips may be required. Prereq: 1 year of Botany or Biology 2 hours and 1 lab. F

312 Principles of Silviculture (3) Principles for treating forest stands to achieve selected objectives. Prereq: Chemistry 100. Coreq. PSS 210, 311, and (for Forestry majors) 313. 2 hours and 1 lab. F

313 Measurements and Sampling (2) Measurement techniques and sampling methods for vegetation; estimation of animal populations; map and aerial photo use. Prereq. Statistics 201, Agriculture and Natural Resources 125, Mathematics 125, Coreq. FWF 312. 1 hour and 1 lab. F

317 Principles of Wildlife and Fisheries Management (3) Ecological relationships of wild animals with other animals and their habitats. Biological, social and economic aspects of their use. Prereq: 321 or 250. Stat 201, Agriculture 290, Mathematics 125, Chemistry 100 and Biology 230. F

410 Wildlife Habitat Evaluation and Management (3) Ecological relationships between wildlife and their habitat. Evaluation, modeling, and management of wildlife habitat. Effects of land-use practices on wildlife habitat. Weekend field trips required. Prereq: 317 or consent of instructor. F

412 Managing Natural Resource Organizations (3) Human, bureaucratic and managerial factors influencing the effectiveness of natural resource organizations. Alternative stakeholder and public involvement objectives, strategies and mechanisms including client-customer, partnership and adversarial. Conflict resolution, proactive collaborative problem solving and alliance building. Prereq. 317 or consent of instructor. (Formerly: 211, 317 and Junior standing) 2 hours and 1 lab. Sp

416 Planning and Management of Forest, Wildlife and Fisheries Resources (3) Integrated forest and wildland resource management through developing land management plans and analyzing the results including conflict resolution. Prereq: Senior standing, 1 hour and 2 labs. Sp

420 International Natural Resource Issues (2) Identification and analyses of issues regarding forestry, wildlife, fisheries, and associated natural resources beyond U.S. borders. Biophysical, economic, and cultural elements impacting natural resources at the international level. Cases: Northern Europe, Latin America, Indonesia, and Africa. F, A

FRENCH (405)

111-112 Elementary French (3,3) Language Laboratory Required. Must be taken in sequence. Not available to students eligible for French 150, E

150 Intermediate French Transition (3) Prereq: Two years of high school French and a placement score below the level required for admittance to French 211. Since 1950 is a review of elementary French, students who received an A in this course would receive credit for any other 100 level French course and therefore also forfeit the six hours of elementary language credit awarded through placement examination. For elective credit only.

199 French Language and World Business (3) The course will examine the language, culture and marketing of foreign trade at the local, state, and national levels. An interdisciplinary team of faculty from the colleges of Business and Arts and Sciences will provide an overview of the value of language study for international business and career awareness in world business. Restricted to students majoring in the Language and World Business major concentration. See the Director for further information. F

FORESTRY, WILDLAND AND FISHERIES (398)
201-212 Intermediate French (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 French credit.E

217-218 Honors: Intermediate French (3,3) For students of superior ability in French. Incoming freshmen admitted on basis of diagnostic test, high school average, and performance on ACT. Class held to a maximum of 15 for individual attention. Students will earn enriched program with emphasis on speaking ability and reading, including literary selections. Students with a grade of A in 211 may enter 218 with permission of instructor. Credit for 300 given to students receiving a grade of A or B in the course. F, Sp

300 Transitional Grammar Review and Reading (3) For students who have completed the intermediate level sequence and who need additional preparation in reading comprehension, vocabulary acquisition, and key areas of grammar. Prereq: French 212 or equivalent or appropriate score on French placement test. May not be counted toward the major or minor.

301-302 Elements of French for Upper Division and Graduate Students (3,3) Elements of language, elementary and advanced readings. Open to graduate students preparing for French examinations, and upper division students desiring reading knowledge of the language. Undergraduate credit only. Not for credit for those having 111-112 or equivalent. No auditors.

333 Intermediate Composition and Grammar (3) Emphasizes writing skills. Review of major grammatical points in French: tenses, prepositions, articles, and agreement. Prereq: French 212, 218, French 300 or permission of instructor.

334 Intermediate Conversation (3) Emphasizes speaking skills. Further review of French grammar. Required of all majors. Prereq: French 212, French 218, French 300 or permission of instructor.

345 French for Business (3) Contemporary French language as it relates to business transactions. Understanding and composing business letters; oral communication and elements of French culture related to good business practices. Either 334 or 345 may be applied toward the major but not both. Prereq: 333 or consent of instructor.

351-352 History of French Literature (3,3) Chronological view of French literature in relation to the specific historical developments that have influenced it. Prereq: 333 or 334 or permission of department.

400 Consecutive and Simultaneous French-English and English-French Translation (3) Consecutive translation to and from English. Introduction to simultaneous translation to English. Prereq: 334, 345 or equivalent.

410 Medieval French Literature (3) Major representative works of Medieval French literature. Texts in modern French. Prereq: a 300-level literature course. Writing emphasis course. (Same as Medieval Studies 410.)

411 French Literature of the 16th Century (3) Highlights of 16th-century French literature. Excerpts from Rabelais and Montaigne; readings of poems from the writers from Lyon and members of the Pleiade. Writing emphasis course. Prereq: a 300-level literature course.


413 French Literature of the 18th Century (3) Major works of the Enlightenment. Writing emphasis course. Prereq: a 300-level literature course.


420 French Cinema (3) The French cinema from its earliest days through the New Wave directors. Prereq: a 300 level literature course. 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. Graduate credit not offered to students majoring in a Romance language. Prereq: French 333 or 334 or permission of department.

422 Advanced Grammar (3) Improving one’s written French by studying basic and more refined structures of the French language. Writing creative free-style compositions. Writing emphasis course. Prereq: French 333 or 334 or 345.

423-424 Advanced Conversation (1,1) Informal conversation with native speaker on contemporary topics. Stress in class contact rather than outside preparation. Meets two hours a week for one semester credit. Prereq: French 333 or 334 or 345.

425 Introduction to Descriptive Linguistics (3) Initiation into the theory and practice of techniques of linguistics analysis in the subfields of phonetics, phonology, cultural and historical perspectives, and applied exercises in spoken and written French. Prereq: French 333 or 334 or 345.

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

429 Romance Linguistics (3) Development of Classical Latin through Vulgar Latin into major Romance Languages. Writing-emphasis course. (Same as Spanish 429 and Linguistics 429.)

430 Theatrical French (4) Comprehensive introduction to theatrical production and performance in French. Students collaborate in the creative staging of a French play, and they actively participate in its public performance. Prereq: 300-level literature course. May apply toward 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 art. Prereq: a 300-level literature course. Writing-emphasis course.

432 Contemporary French Culture (3) Current French cultural issues placed in historical perspective with a comparative emphasis. In English; readings in French for majors. May apply toward French major. Writing emphasis course. (Same as Women’s Studies 432.)

433 French and Francophone Women Writers (3) Works by women writing in French considered in cultural context. In English; readings in French for majors. May apply toward French major. Writing emphasis course. (Same as Women’s Studies 433.)

434 Literature of Quebec (3) Survey of literature of contemporary Quebec. Readings include literary works, such as the Voyages of Champlain and the Journals of the Jesuits, as well as the literature of the contemporary Quebec. Writing emphasis course. Prereq: a 300-level literature course.

440 Capstone Experience in French (3) Synthesizing senior colloquium and tutorial in which students reflect on the raison d’etre of the discipline from a multidimensional point of view. Writing-emphasis course. Prereq: a 400-level literature course.

445 Advanced French for Business (3) Study of advanced contemporary French language and culture as they relate to business transactions. A comparative approach is used to explore differences and similarities between Francophone business culture(s) and those of North America and Japan. Students build upon their knowledge of business terminology while being sensitized to culture differences and the dangers of simplistic stereotyping. Writing emphasis course. Prereq: 345 or consent of instructor.

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 Off-Campus Study (1-15)

493 Independent Study (1-15)

**Courses of Instruction**

**GEOGRAPHY (415)**

101-102 World Geography (3,3) Selected topics and world regions, especially the major problems or situations of contemporary interest, to illustrate geographical viewpoints, concepts, and techniques. May be taken in either order.

108 Honors: World Geography (4) For freshmen and sophomores of superior ability who are interested in the geographical approach to important world problems and issues. Open to students who have received an “A” in Geography 101. Students may not receive credit for both 102 and 108.

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 environmental regions significant to human society. Must be taken in sequence. 3 hours lecture and 2 hours lab per week. Prereq: 131 is prerequisite to 132.

310 Introduction to Cartography (3) Properties, sources, uses, design and production of maps as tools for geographical analysis. Introduction to desktop mapping techniques and data display using basic thematic map styles. 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 aspects of world regions, patterns in cultural ecology, innovation and diffusion, cultural integration, and world patterns of cultural phenomena.

323 Behavioral Geography (3) Types of human behavior, such as settlement, territory, commodity residential mobility, and regional consciousness, as they relate to distance, natural environment, and culture. (Same as Urban Studies 323.)

334 Meteorology (3) Dynamic atmosphere and resulting weather events. Nature of individual weather elements, their measurement and analysis over time and space.


345 Population and Environment (3) Global and local patterns of population distribution and change as they relate to culture, economic development, technology, and the environment and the future. Prereq: 101-102 or consent of instructor. Writing-emphasis course.


361 Regional Geography of the United States and Canada (3) Physical, economic, and social distributions as they interrelate to and give distinctive character to regions of the United States and Canada. Writing-emphasis course.

363 Geography of the American South (3) Geographical appraisal of the southeastern United States, including physical environment and human resources. Origin and development of contemporary economic and cultural traits of the area. Writing-emphasis course.

365 Geography of Appalachia (3) Interrelation of physical, economic, and social patterns that give distinctive character to the region and its parts, especially in southern Appalachia. Appalachia in perspective in the current American scene. Writing-emphasis course.

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

372 Geography of Middle America (3) Physical, cultural, and economic characteristics of Mexico, Central America, and the West Indies. (Same as Latin American Studies 372.) Writing-emphasis course.

373 Geography of South America (3) Physical, cultural, and economic characteristics of the countries of South America. (Same as Latin American Studies 373.) Writing-emphasis course.

379 Geography of Africa (3) Physical, cultural, and economic characteristics of Africa, with particular emphasis on the area to the south of the Sahara. Writing-emphasis course. (Same as African and African-American Studies 379.)
420 Paleoecology (4) Principles of ecological analysis as applied to fossils 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 (4) Survey of invertebrate animal phyla, with emphasis on skeletal structure and preservation. Field morphology, ecology, and the stratigraphic distribution. Prereq: 320 or consent of instructor. 2 hours and two 2-hour labs.

431 Geological Engineering (3) (Same as Civil Engineering 431.)

440 Field Geology (5) Summer field course for advanced undergraduates and first and second-year graduate students in geology. 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 societal context. Field techniques demonstrated and practiced, and applied to the solution of geologic problems. Prereq: Completion of other major core courses (310, 320, 330, 340, 370) and consent of instructor.

450 Process Geomorphology (3) Integrative approach to the development of the surface of the Earth 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: 101.

460 Principles of Geochemistry (3) Applications of chemical principles to geologic systems with emphasis on problem-solving techniques. Topics include phase diagrams, partitioning of trace elements, thermodynamic principles for evaluating stabilities of mineral assemblages, aqueous solutions, and applications of radioactive and stable isotopes to geologic systems. Prereq: Chemistry 120-130, Mathematics 141-142, recommended. Geology 330 or consent of instructor. 3 hours lecture and one 2-hour tutorial.

470 Applied Geophysics (3) Basic principles 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 undergraduates 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 the 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, atmosphere, and lithosphere, and core. Interdependence of earthquakes, volcanism, plate tectonics, geochemistry, 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 geology courses numbered 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 metallogeny. Prereq: 310 and 330 or equivalents. Recommended. Geology 330 or consent of instructor. 3 lecture hours and one 2-hour lab.

485 Principles of Hydrogeology (3) Physical principles of flow, flow equations, geologic controls, aquifer analysis, water well design/testing, introduction to transport processes. Prereq: 101, Math 141 and 142, Physics 133 or 134 or equivalent, or consent of instructor. (Same as Civil Engineering 485.)

486 Hydrogeology Laboratory (1) Application and demonstration of hydrogeological principles in the field and laboratory. Prereq: 485 or Environmen- tal Engineering 535, or consent of instructor.

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)
492 Off-Campus Study (1-15)
493 Independent Study (1-15)

GERMAN (433)

101-102 Elementary German (3.3) Language laboratory required. Must be taken in sequence. Not open to students eligible for German 150. 111 Language Laboratory (0)

121 Language Laboratory (0)

150 Elementary German Transition (3) This course is designed to prepare students for enrollment in German 201. Prereq: Two years of high school German and a placement score below the level required for admittance to German 201. Since 150 is a review of elementary German, students who meet the above requirements may also enroll in this course. Credit will only be given if the student scores below the level required for German 150. 202 Intermediate German (3.3) Must be taken in sequence. Prereq: 101 or 102 or 121 or appropriate placement exam score.

199 German Language and World Business (3) The course will examine the importance of foreign trade at the local, state, and national level. An interdisciplinary team of faculty from the Colleges of Business Administration and Arts and Sciences will provide an overview of the value of language study and international cultural awareness in world business. Restricted to students majoring in the Language and World Business major concentration. See the Director for further information.

201-202 Intermediate German (3.3) Must be taken in sequence. Prereq: 102 or 150 or appropriate placement exam score.

215 German, Special Topics (3) If content varies, may be repeated for credit. Maximum 6 hours.

301-302 Introduction to German Literature (3.3) Prereq: 202 or equivalent. Need not be taken in sequence.

305 Readings in German (3) Topics in both literary and nonliterary fields. Students or student groups are encouraged to suggest topics for future courses. May be repeated twice with approval of department. Prereq: 202 or equivalent.

311-312 Conversation and Composition (3.3) Prereq: 202 or equivalent.

323 German Film (3) A study of the German cinema from the earliest days to the present. Writing-emphasis course. (Same as Cinema Studies 323.)

331-332 Elements of German for Upper- and Graduate Students (3.3) Language laboratory and laboratory and oral proficiency and written assignments. Prereq: 331 or 332. (Same as Linguistics 331.)

350 German-Jewish Topics in Literature and Culture (3) Selected issues, themes, figures, movements, and problems in the German-Jewish relationship as reflected in literature and culture from the 1750s to the present. Variable content. Available for both majors and non-majors. May be repeated with approval of department. Maximum 6 hours. (Same as Judaic Studies 355.)

363 Modern German Culture (3) German culture from the mid-nineteenth 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. (Same as Spanish 362.)

411-412 Advanced Conversation and Composition (3.3) Prereq: 311-312 or equivalent or consent of department.

415 German, Special Topics (3) If content varies, may be repeated for credit. Maximum 6 hours.

420 Selected Topics in German Literature from 1750 to the Present (3) Prereq: 6 hours of courses excluding 331-332 and courses in English translation, or equivalent.

421 German Lyric Poetry (3) Prereq: 6 hours of 300 courses excluding 331-332 and courses in English translation, or equivalent.

422 German Drama (3) Prereq: 6 hours of 300 courses excluding 331-332 and courses in English translation, or equivalent.

423 German Narrative Prose (3) Prereq: 6 hours of 300 courses excluding 331-332 and courses in English translation, or equivalent.

424 German Literary Movements (3) Major periods in the development of German literature since 1750, with emphasis on the problems and elements of language characterization.

425 Introduction to Descriptive Linguistics (3) (Same as Russian 425, French 425, Spanish 425, and Linguistics 425.)

426 Methods of Historical Linguistics (3) Phonetics, distinctive feature analysis, sound change types, nature of sound change, principles of reconstruction and fundamental assumptions about language change through time. Non-phonological linguistic change, language families, Proto-Indo-European and other proto languages. Prereq: 6 hours of upper-division foreign language courses excluding courses in translation or graduate reading courses. (Same as Russian 426, French 426, Spanish 426, and Linguistics 426.)

435 Structure of the German Language (3) Contrastive English-German segmental and suprasegmental phonemes, contrastive English-German linguistic structures, selected topics in advanced German grammar and syntax analysis. Prereq: 6 hours of upper-division German language courses excluding courses in translation and graduate reading courses. (Same as Linguistics 435.)

436 History of the German Language (3) Development of the German language from Indo-European through Proto-Germanic, Old High German, Middle High German to New High German. Internal and external linguistic history of German. Prereq: 6 hours of upper-division German language courses excluding courses in translation and 331 or 332. (Same as Linguistics 436.)

477-478 German Honors (1,1) Preparation of honors paper portfolio and oral presentation. Prereq: Permission of the department.

485 Business German (3) German used in fields of business, government, administration and economics. Prereq: 6 hours of upper-division German excluding courses in translation and 331 or 332.

490 Internship (1-15) Career-related experiences in the U.S. 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 Off-Campus Study (1-15)

493 Independent Study (1-15)

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

GREEK (257)

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

261 Intermediate Greek: Grammar Review and Readings (3) Systematic review of Attic Greek and readings from selected authors. Prereq: 122.

264 Intermediate Readings in Greek (3) Content varies. Prereq: Classics 261.

401 Greek Poetry (3) Epic, lyric, drama. Authors vary. Prereq: 261.

402 Greek Prose (3) History, philosophy, and oratory. Authors vary. Prereq: 261.

405-406 Selected Readings from Greek Literature (3,3) For advanced students in Greek, the study of plays, the historical writings, the poetry of the age in the original Greek. May be repeated for credit. Maximum 9 hours. Prereq: 401-402 or consent of instructor.
Courses of Instruction

HEALTH (449)

110 Personal Health and Wellness (3) Information and behavior to approach health and wellness scientifically and to develop confidence in judgments affecting personal health and wellness. Students who have received credit for Health 330 may not thereafter receive credit for this course. 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.

225 Alcohol/Drugs and the College Student (2) Problems related to drug use, identification 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 cardiopulmonary arrest due to such conditions as heart attack, drowning, electrocution, suffocation, poisoning, drug intoxication, and vehicular and other accidents. Educa-
tional and preventive aspects of controlling cardiovas-
cular disease. Leads to basic life support certification. F, Sp

300 Health Education, Promotion, and Behavior (3) Health education goals, roles, targeted populations in school, community and health care settings; health careers; roles of communities, 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. F

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, community resources, and communicating healthful lifestyle. Prereq: Admission to Teacher Education Program. F, Sp

310 Advanced First Aid and Emergency Care (3) Theory and practices 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 15 years old for certification. E

330 Wellness for Health Professions (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. Students who have received credit for 330 may not thereafter receive credit for Health 110. Sp, Su

375 Health Communications (3) Communication strate-
gies for health educators in various settings. Emphasis on interpersonal communication, public relations, leadership, small group processes, health teams, and effective use of media. Prereq: Health 300, Public Health 300. Sp

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


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

425 Women’s Health (3) Factors influencing women’s health and as women consumiers in nation’s health service delivery systems. Study of health problems/concerns of women and techniques for prevention, maintenance and/or correction. (Same as Women’s Studies 425.) E

426 Health Education Program Planning (3) Principles of curriculum development, administration, imple-
mentation, methodology, and evaluation. Prereq: Health 300, Health 375, Public Health 300, and Psychology 430.

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 social 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 paramedical personnel. Lectures, demonstrations, films, field trips, and supervised research in special health/health promotion issues. May be repeated. Maximum 12 hours.

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

483 Field Practice (12) Off-campus health internship or field practice in an educational or other agency with qualified professional. Prereq: Progression and approval for internship. Satisfactory/No Credit only. Usually taken in final semester. E

HEBREW (458)

141-142 Elementary Modern Hebrew, I & II (4, 4) (Same as Asian Studies 141-142.)

241-242 Intermediate Modern Hebrew, I & II (4, 4) (Same as Asian Studies 241-242.)

HISTORY (462)

221-222 History of the United States (3, 3) 221—Settlement to 1877. 222—1877 to present. Writing-emphasis course. E

227-228 Honors: History of the United States (3, 3) Consent of department required. Students will attend the appropriate 221-222 lectures and the designated honors discussion section.

241-242 Development of Western Civilization (3, 3) Historical survey of the civilization of the western world. 241—Ancient world to 1715. 242—1715 to 1759. Writing- emphasis course. Students will attend the appropriate 241-242 lectures and the designated honors discussion section.

247-248 Honors: Development of Western Civilization (3, 3) Consent of department required. Writing-emphasis course. Students will attend the appropriate 241-242 lectures and the designated honors discussion section.

255-256 Introduction to Latin American Studies (3, 3) Social, political, and economic development of Latin America, from pre-conquest through present day. Prereq: Consent of department. (Same as Latin American Studies 251-252.)

261-262 A History of World Civilization (3, 3) Historical survey of world civilization. 261-Origin to 1500. 262-1500 to present. Writing-emphasis course.

307 Honors: Introduction/Historical Problems (3) Historical analysis, philosophy of history, principles and techniques of research emphasizing the roles of climates of opinion and frames of reference and the problems of evidence, interpretation and objectivity. Required of students working for honors in history. Prereq: Consent of the department.

310 The Ancient World: Greece (3) (Same as Classics 310.)

311 The Ancient World: Rome (3) Origins of Roman imperialism and its consequences: militarism, empire, socioeconomic changes, constitutional crises, emer-
gence of military and political autocracy. Writing-emphis-
sis course. (Same as Classics 311.)

312-313 Medieval History (3, 3) 312—Early Middle Ages: 300-1100. Formation of medieval society and institutions. 313—Later Middle Ages: 1100—Height of medieval civilization, and its waning in the fourteenth century. (Same as Medieval Studies 312-313.)

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

315 Reformation Europe, 1500-1650 (3) The period during which Europe witnessed religious disunity, eco-
nomic dislocation and insecurity, political centralization, intellectual and cultural 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 such as the modern population explosion, urbanization, the political emergence of the middle class and the masses, nationalism, imperialism, rationalism and Ro-
manticism in social and political thought and politics. Writing-empha-
sis course.

320 Contemporary Europe, 1900-Present (3) The trans-
formation from industrial to post-industrial society and the transformation of the European nation-state. Topics such as war and depression and the consequent political and social instability; totalitarian control; 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.)

323 Deviance and Persecution in the Christian West 1100-1700 (3) Emergence and shifts in movements of dissent; popular perceptions and ecclesiastical and civil policies and institutions designed to uncover and combat heretics, homosexuals, Jews, and "witches". Writing emphasis course.

330-331 History of England (3, 3) 330-to 1688. 331-1889 to the present. Medieval state, church, and society; origins of Anglo-American law, the monarchy and parlia-
mentary government, the Reformation, 17th Century revolutions, commercial, agricultural and industrial revolu-
tions; class conflict, empire, the welfare state, world wars, economic crisis.

333 History of France (3) France since the Revolution, 1789 to the present.

334-335 History of Germany (3, 3) 334-Germany I, to 1815. The First Reich’s Fortune and Failure. The develop-
ment of the Prussian and German empires, the unification of the German lands, from the medieval empire to its disintegration, through dynastic and religious realignments, to the Austrian-Prussian dualism in the time of Frederick the Great and Maria Theresa, culminating with the end of the older order in the Age of Napoleon. 335- Ger-
many II, Since 1800. The Quest for Nationhood. The evolu-
tion of modern Germany through revolution, indus-
trialization and wars, from Metternich’s Confederation, to Bismarck’s Second Reich, to the Weimar republic to Hitler’s Third Reich, to Adenauer’s Federal Republic and the present nation.

339 Modern Ireland, 1760-Present (3) Ireland’s social, political, economic, and cultural history. Themes in-
clude: Ireland’s status as England’s first colony from the Norman period to Cromwell and beyond; peasant revolt, Catholic-Protestant antagonism; and nationalist revolu-
tionary movements; the Famine; and Home Rule, Parti-
tion, and independence in the 20th century, with contin-
uing sectarian tensions.

340 Russian History (3, 3) 340—To the middle of the 19th century. 341—On the turn of the 19th century.

342 History of Nazi Germany (3) The coming to power of the Nazi party in Germany, origins of ideology, rise and fall of the “Third Reich.” Topics include foreign policy, social policy, World War II, Hitler’s brutal rule and racial programs, culminating in mass murder and genocide against the Jews of Europe. Writing-emphasis course.
346 The Environment in U.S. History (3) Environmental consequences of competition for scarce resources among Indians, European Americans, and Hispanic/Latino Americans in the first half of the 20th century. Population growth; industrialization; urbanization; conversion; and environmentalism. Writing emphasis course.

350 Colonial America to 1763 (3) Social and cultural developments in the American colonies from the point of view of individuals in this period. Emphasis on the contact between native peoples, Africans, and other ethnic groups through the mid-eighteenth century. Writing emphasis course.

351 The American Revolution, 1763-1789 (3) The growing estrangement of the American colonies from the British Empire, the War for Independence, and the creation of a new American republic. Writing emphasis course.

352 The United States during the Jacksonian Era, 1815-1860 (3) An examination of the major economic and political developments in antebellum America within the framework of the struggle between nationalism and sectionalism.

353 The Civil War and Reconstruction Eras, 1860-1877 (3) An examination of the major political, economic, and social developments in the United States during the Civil War and Reconstruction era.

354 United States, 1877-1933 (3) America’s political, economic, and social development from the Gilded Age through the Great Depression.

355 United States, 1933 to the Present (3) American experience from Roosevelt’s New Deal through World War II and the Cold War. Emphasis on the domestic history but includes military and foreign policy.

356 The 1960s in America (3) The politics, social movements, and cultural revolutions of the 1960s. Topics include race riots, antiwar protests, new art forms, Great Society legislation, the rise of nonconservatism, empowerment movements by people of color, Cold War brinkmanship in Cuba, and the escalation of ground and air wars in Vietnam. Writing-emphasis course. (Same as American Studies 356.)

360-361 History of Latin America (3.3) 360-Colonialism and Independence, 1500-1825. 361-National Development, 1825 to present. Writing-emphasis course. (Same as Latin American Studies 360-361.)

362-363 History of East Asia (3.3) 362—East Asia: History and Culture to 1600. Chiefly China and Japan, Korea and Vietnam also included. Confucianism, Buddhism, social structure, political tradition, and Japanese feudalism. Comparison and contrast with Western history and culture. 363—Modern East Asia since 1600. China, Japan, Korea, and Vietnam. Comparative modernization: Western influence and modernization, communist movement, and Japan’s militarism and postwar economic success. Writing-emphasis course.

364 History of China (3) Changes and continuities of the world’s longest uninterrupted civilization with a quarter of the human race differences between China and Western civilizations; Chinese revolutions in historical context. Writing-emphasis course.

365 History of Japan (3) Japanese history from mythological origins to the postwar age, with emphasis on politics and society, including the influence of disease on society, Japanese feudalism, popular culture in the 1700s, the Meiji Restoration, and Japanese militarism. Writing-emphasis course.

366 History and Archaeology of Mesopotamia (3) Mesopotamia (Assyria and Babylonia) from the fifth millennium to the Iron Age. Specific topics will include the development of village and state-level societies, and the emergence of social and political institutions, literacy, imperialism, and intercultural interaction. Writing-emphasis course.

369-370 History of the Middle East (3.3) 369-Rise and spread of Islamic civilization to the sixteenth century. 370-The Middle East from the sixteenth century to the present. Impact of the West and background of current problems in the area. Writing-emphasis course. (Same as Judicis Studies 369-370.)

371-372 African History (3.3) 371—Survey of sub-Saharan Africa: State creation, trade, spread of Islam, and cultures. 372—Dynamics of Africa’s encounter with Europe from 1500 to the present. Slave trade, colonial, and independence eras. Writing-emphasis course. (Same as African and African-American Studies 371-372.)

373 Historical Issues (3) Variable content. Broad thematic issues in historical perspective. Lecture-discussion. Especially suitable for non-majors; also open to majors. May be repeated. Maximum 9 hours.

374 A History of Imperialism since 1850 (3) Relations between the West and Africa, Asia, and Latin America since 1870 across a broad spectrum of critical issues. Includes European interdependence and underdevelopment, ideologies in conflict with non-Western world views, and the search for individual identity in circumstances of cultural disruption. Writing-emphasis course.

375 Revolutions in Historical Perspective (3) Comparative history of major revolutions which transformed political, social, and economic structures and values, such as those in France, Russia, China, Mexico, and Iran. Contrasts of social structure, ideology, and outcomes. Relations between leaders and masses. Major theories of revolution. Writing-emphasis course.

381 History of South Africa (3) South African history from the pre-colonial period through the apartheid and post-apartheid eras. Topics include African state formation and resistance to European colonization, the impact of industrialization, the evolution of modern resistance movements, and the first democratic elections in 1994. Writing-emphasis course. (Same as African and African-American Studies 381.)


384 History of Jewish Civilization II (3) Medieval - Present. The resiliency of Jewish civilization in the face of external pressures; of Sephardic and Ashkenazi Jews in medieval Europe; North Africa and the Middle East; Jewish mysticism; Judaism’s encounter with modernity: Hasidism, the Haskala; the Reform movement and Zionism; the Holocaust; pariah status of the diaspora; and modern Jewish life in the State of Israel; and assimilation and the future of Judaism. Writing-emphasis course. (Same as Judaic Studies 384.)

385 Studies in World History (3) Variable content. Selected topics in world history involving analysis of two or more world cultures. May be repeated. Maximum 9 hours.

395 The Crusades and Medieval Christian-Muslim Relations (3) The major Christian crusades in the Middle East and Spain, 1050 to 1500; their political and military significance, and larger cultural contexts of the medieval religious, cultural, intellectual, and diplomatic confrontation between Christians and Muslims. Writing-emphasis course. (Same as Middle Eastern Studies 395.)

407 Honors: Senior Paper (3) Bibliographic search, research and conceptual clarification for the senior paper. Required of students working for honors in history.

408 Honors: Senior Paper (3) Organization and writing of the senior honors thesis. Required of students working for honors in history. Grade of A or B required for honors credit.

421 Comparative Studies in African and African-American Societies (3) (Same as African and African-American Studies 421.)

429 Medieval Intellectual History (3) The evolution of thought in Europe from late antiquity to the advent of Humanism, especially connections between major thinkers and their social, economic, and professional contexts. Writing-emphasis course.

430-431 European Intellectual and Cultural History (3, 3) 430-Europe, 1760-1870. 431- Romanticism to Relativism, 1750-Present.

432 Women in European History (3) Comparative analysis of the roles of women in Medieval, Renaissance and Victorian Europe. Relationship between family structure, sexual attitudes and the economic and political roles of women with an emphasis on autobiographical writings by women. Writing-emphasis course. (Same as Women’s Studies 432.)

439 Southeastern Indian History (3) Southeastern Indian history from the protohistoric period to the present. Interaction of Euroamerican, African-American, and Native-American peoples; warfare, slavery, race relations, and other policies from the American Revolution to twentieth-century problems such as tribal sovereignty and dependency. Writing-emphasis course.

441 The American West (3) From 1803 to present, with emphasis on the development of matriculated ethnic and cultural groups, the rise of individual identities and their conflict and outcomes. Writing-emphasis course.

442 Indian and Black Relations in United States History (3) Dynamics of two cultures existing side by side; background and formulation of official Indian policy; undermining of policy by frontier circumstances; Indian wars and campaigns; present-day relations. Writing-emphasis course.

443-444 History of the South (3, 3) 443—Old South from colonial period through the Civil War. 444—New South from Reconstruction through the Second Reconstruction.

445 The African-American Experience from the Colonial Period to the Present (3) Topics in 19th and 20th century African-American history, such as Pan-Africanism and the effect of education on the status of Blacks. (Same as African and African-American Studies 445.)

446 History of African Culture (3) Topical examination of the origins and development of Africa’s cultural values, attitudes and beliefs from the formation of the nation to the present. Illustrative topics: creation of a national culture; Civil War as cultural conflict; challenge of cultural nationalism; rural versus urban values; cultural upheaval 1920s-30s; present nature of African culture. Writing-emphasis course.

449 History of Tennessee (3) Tennessee’s history from the 18th century to the present.

450 History of U.S. Foreign Relations to World War II (3) Examines the ideology and practice of U.S. international relations from independence to entry into the Second World War.

451 United States Military History, 1754 to the Present (3) The nation’s broad strategic aims and means used to attain them, shifting strategy, tactics and weaponry involved in wars, and relationship between American society and its armed forces. (Same as Military Science 450.)

452 The American Experience in World War II (3) Diplomacy and warfare in Europe and Asia and the impact of the war on American society.

453 Women in American History (3) Approaches of 432 applied to American society. Writing-emphasis course. (Same as Women’s Studies 453.)

454 Cities and Urbanization in American History (3) Origins, growth, and influence of America’s cities in the development of the nation, from colonial era to present. Writing-emphasis course. (Same as Urban Studies 454.)

455 Environmental History of Urban America (3) Pre-industrial, industrial, and modern environmental crises, including animal pollution; epidemic disease; infrastructural construction; hinterland resource exploitation; and urban renewal and clean-up. Writing-emphasis course.

456 History of Sports in the United States (3) Development of sports and their signification in American life from colonial period to present. Emphasis on social, cultural, economic and political impact of both spectator and participatory sports in 20th century. (Same as American Studies 456.)

459 Jefferson’s America, 1789-1815 (3) Nation-building in the United States from the Constitution to the War of 1812. Economic modernization, the new national government, the first political party system, foreign relations, the War of 1812. Writing-emphasis course.

460 History of Brazil (3) History of Latin America’s largest nation. History of boom and bust cycles, slavery and the abolition of slavery, populism, military rule, and redemocratization. Writing-emphasis course. (Same as Latin American Studies 460.)
489 Oral Histories of War and Peace (3) Oral history methodologies and interviews with veterans and others who have shaped modern American military history. Special topics may include World War II, the Korean War. History 451, U.S. Military History, is recommended but not required.

490 Internship in the Center for the Study of War and Society (3) A structured field work experience in public history. Prereq: Coreq: History 430, U.S. Military History, including special projects such as grant writing, interviewing, and archival processing. Prereq: Coreq: History 341, U.S. Military History. May be repeated. Maximum 6 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

**HOTEL AND RESTAURANT ADMINISTRATION (512)**

101 Food Quality Principles (3) Scientific principles involved with selection, preparation, evaluation and safety of quality food. 2 hours and 1 lab.

119 Introduction to the Service Industry (3) Organizational and basic operating systems for the career paths available in the hospitality, retail and recreation and tourism industries. Managerial competencies necessary for success in these fields. (Same as HRA and RCS 119.)


211 Hotel Operations (3) Operational theory of lodging and an exploration of the lodging industry in terms of nature of work, organizational structure of lodging segments, the meaning of guest services, differentiation of brands, current industry issues, and evaluation of the market place. Coreq: Coreq: HRA 119/193.

311 Developing the Service Workforce (3) Personnel management procedures and policies to develop the service workforce. Topics include leading organizational change, labor costs, employee retention, and personnel issues. Prereq: HRA/RCS 210 or HRA 211 or RTM 310. (Same as RCS and RTM 311.)

321 Quantity Food Procurement, Production and Service Laboratory (1) Application of principles in determining maximum yield to reducing and serving foods in volume. Prereq: 120, 220, NTR 100 or 107, HRA 101, Micro 210 or PH 310; progression into HRA program or completion of coursework (Same as RCS 320, Business 320.)

322 Diversity in the Service Marketplace (3) Market place survey of diversity in the service marketplace. Implications for the manager of a diverse workforce in the delivery of goods and services to a multiplicity of customers. Prereq: Coreq: HRA/RTM 311 (Same as RCS 323 and RTM 323.)

324 Tourism and Travel Administration (3) Economic and social forces influencing domestic and international tourism; services, functions of retail, wholesale travel agencies. Prereq: Coreq: HRA 210 or HRA 211; or consent of instructor.

326 Food and Lodging Cost Control (3) Budget, cost analysis, computer, financial statement use in decision making in lodging and foodservice systems. Prereq: HRA 210 or HRA 211; or Act 212; or consent of instructor.

335 Convention and Meeting Planning Management (3) Practical insights into types of convention/meeting services, roles of the association, corporate, and government convention and meeting planners, setting of objectives and format, site selection, negotiations, program design, speaker selection, budgeting, contracting, marketing, registration, on-site logistics, and evaluation. Prereq: HRA 210 or Coreq: HRA 211.

341 Food Safety and Sanitation for the Food Service Industry; Hazard Analysis Critical Control Point (HACCP) (1) Students will be eligible to become ServSafe certified. Prereq: or Coreq: HRA 210.

376 Strategies for Growth (3) Issues concerning achievement of business growth with focus upon the consumer, operational, and financial dimensions of the service industry. Prereq: Mkt. 300, HRA 326 or RTM 310, or RCS 310, RCS 341. (Same as RTM 376 and RCS 376.)

390 Professional Development (3) Development of skills important to career success; focus on business communications, time and stress management, motivational and negotiation skills. Prereq: Coreq: HRA 320 or RCS 310 or RTM 310 and progression into the program. (Same as RCS 390.)

410 Strategic Restaurant Planning (3) Restaurant Management from a strategic planning perspective; development and implementation of hotel strategy from financial, operational, and customer orientation. Prereq: HRA 390.

420 Professional Experience in Restaurant and Food Service Management (6) Supervised educational experiences in selected hotel/foodservice operations. Prereq: Progression into the program and HRA 326 and 390.

421 Professional Experience in Hotel/Tourism Management (6) Supervised educational experiences in selected hotel/tourism operations. Prereq: Progression into the program and HRA 326, 390.

423 Hospitality Sales and Marketing (3) Strategic marketing for lodging and restaurant organizations; includes properly/product, market, and competition analysis; promotion and sales strategies. Prereq: Marketing 301; progression into HRA program or consent of the instructor.

424 Strategic Hotel/tourism Planning (3) Hotel management from a strategic planning perspective; development and implementation of hotel strategy from financial, operational, and customer orientation. Prereq: HRA 390.

425 Legal Issues in Service Management (3) Legal rights and responsibilities of hotel managers, groups, and their staff and clientele. Prereq: HRA/RCS/RTM 311, progression into the program or consent of the instructor. (Same as RCS 425.)

429 Hospitality Computer Applications (3) This course is designed to provide students with a broad exposure to software program applications specifically for the hospitality industry. The course covers computer usage for guest room accounting, reservations, payables, receivables, management reporting, inventory control, point of sale, revenue control, labor control, and product cost control. Prereq: HRA 326, 390.

440 Special Topics: Hotel and Restaurant Administration (1-3) Develops, issues and problems in Hotel and Restaurant Administration; topics variable. Prereq: Junior or Senior Standing in Hotel and Restaurant Administration Program or consent of the instructor. May be repeated. Up to 9 hours.

445 Advanced Food Production and Service Management (3) Application of management concepts in menu design, personnel, cost control and production and service of food. 2 hours and lab. Prereq: HRA 210.

450 Advanced Lodging Management (3) This course is designed to provide students with the ability to interpret operational problems currently occurring in the hotel industry in a case study, interactive environment. The student will analyze management opportunities and threats within a hotel and determine reasonable alternatives. Prereq: HRA 211, 326, 425, Mkt. 301.

480 Professional Experience in Restaurant and Food Services Management II (9) Supervised professional experience in selected food service operations that builds upon first professional experience. Prereq: HRA 410, 420, HE 410. Coreq: HRA 485.

481 Professional Experience in Hotel/Tourism Management II (9) Supervised professional experience in selected hotel operations that builds upon first professional experience. Prereq: HRA 421, 424, HE 410. Coreq: HRA 486.

485 Managerial Issues in Restaurant and Food Service (3) Managerial problem solving involving staffing and retention of personnel, conflict resolution, financial analysis, and crisis management. Coreq: HRA 480 or 490, Prereq: HRA 410, 420, HE 410.

490 Management Experience in Restaurant and Food Service Management (9) Supervised managerial training with sponsoring restaurant and food service operations. Prereq: HRA 410, 420, or Coreq: HRA 480.
491 Management Experience in Hotel/Tourism Management (9) Supervised managerial training with sponsoring hotel operations. Prereq: HRA 421, 424, HE 410, Co-Req: HRA 486.
494 Directed Study: Hotel and Restaurant Administration (1-3) Individual student faculty experience. Prereq: Junior and 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.
310 Design in Everyday Life (3) Aesthetic environment. Planning and organizing interior spaces to meet personal and family needs. Relationship of materials and furnishings to architectural space.
410 Human Ecological Systems (3) Systems theory as a component of human ecology; factors impacting on the nature of family unit and environment. Prereq: HRD 210; CFS 210 or CFS 220 or RCS 341; 6 upper division hours in major.
445 Field Experience in Community-Based Programs (1-15) Placement in Home Economics-related programs or business program for student's professional growth. May be repeated. Maximum 15 hours. Prereq: Consent of instructor. Satisfactory/No Credit only.
450 Special Topics: Human Ecology (1-3) Study in a selected professional area within the College of Human Ecology. Topics vary. May be repeated. Maximum of 9 credit hours.
460 Directed Study: Human Ecology (1-3) Topic arranged by 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: Human 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 RESOURCE DEVELOPMENT (529)
161 Graphic Communications (3) Drafting as a means of communication in technology. Orthographic and multiview drawing, conventional practices, pictorial techniques and applications, sheetmetal development, auxiliary view developments, and architectural drafting. Introduction to sketching, dimensioning and CAD.
163 Power and Energy Systems (3) Automotive technology and internal combustion engines. Includes various aspects of fuel systems, engine components and transmission of power. Engine tune up and overhaul and small engine maintenance and repair is stressed through experimental and applied laboratory experiences. F
201 Field Experience in Teaching (1-3) Field experience in public schools Business/Marketing, Family and Consumer Sciences, or Technology Education programs. May be repeated for a maximum of 3 hours. S/N Credit only.
210 Microcomputer Applications (3) Introduction to microcomputer use and five software programs; operating systems, word processing systems, data base systems, spreadsheet programs and graphics programs; design of a management information system; spreadsheet, word processing, and database. Prereq: Declared major in College of Human Ecology. Satisfactory/No Credit grading.
285 Introduction to Human Resource Development (3) This online course will be an overview of online instructional methodology; issues and problems associated with employee training and development; strategic training; needs assessment; learning theories and program design; transfer of training; career development; organizational development, employee empowerment and reorganization. Prereq or Coreq: HRD 210. F, Sp
300 Individuals, Society, and Technology (3) An overview of how technology and human innovation is used to meet needs and solve problems. Hands-on opportunities to develop and solve group and individual problems in a tools and material context.
305 Construction Systems (3) Introduction to construction technology, preparing for the construction project, designing and planning the project, managing construction, designing and engineering projects, manufacturing the product, marketing the product, and performing financial activities.
325 Development of Instructional Resources (3) The first in a series of four online core courses designed to prepare instructors for the learning environment. It includes the design and development of instructional materials, the preparation of teaching aids, and sequencing instruction based on the Instructional Systems Development (ISD) model. Each student will develop a training module. Prereq: HRD210.
330 Instructional Strategies and Techniques (3) The second in a series of four online core courses focuses on methods and techniques of facilitating learning through application of communication theory, teaching and training concepts, and delivery methods and skills. Students will provide demonstrations in facilitating learning as a final course product. Prereq: 325. E
335 Program Planning for Training, Development and Education (3) The second in a series of four online core courses focuses on methods and techniques of facilitating learning through application of communication theory, teaching and training concepts, and delivery methods and skills. Students will provide demonstrations in facilitating learning as a final course product. Satisfactory/No Credit only. Prereq: 325. E
336 Teaching Technical Skills-Based Business Education and Marketing Education (3) Methods and techniques for teaching Business Education and Marketing Education technology-based content that results in learner acquisition and refinement of technical skills. Sp
350 Related and Applied Theory in Occupations (1-15) Applicants must show evidence of bona fide occupational experience compatible with State Plan requirements. Written test or test and the submission of a comprehensive portfolio are used to award variable credit. Measures evaluated by technical specialist and departmental faculty. May be repeated. Maximum 15 hours. Satisfactory/No Credit only. Prereq: Junior standing and departmental approval. E
351 Manipulative Skills in Occupations (1-15) Applicants must show evidence of bona fide occupational experience compatible with State Plan requirements. Written test or test and the submission of a comprehensive portfolio are used to award variable credit. Measures evaluated by technical specialist and departmental faculty. May be repeated. Maximum 15 hours. Satisfactory/No Credit only. Prereq: Junior standing and departmental approval. E
352 Practicum in Industrial Education (1-3) Updating and upgrading experiences in nontraditional settings for technical teachers. May be repeated. Maximum of 6 hours. Satisfactory/No Credit only. E
361 Graphic Reproduction Processes (3) Principles of printing, duplicating, photography, and other forms of graphic communication; includes laboratory experience in SLR camera applications, camera copy preparation, line and halftone photography, layout, stripping, plate-making, and offset presswork. F
369 Plastic Technology (3) Characteristics and applications of thermoplastic and thermostetting materials. Plastic production equipment, material design, and processing of plastics. Prereq: 165 and admission to Teacher Education Program. Sp
370 Technology Systems I (3) A systems approach to the study of technology systems; introduction to the technology process with emphasis on the production and measurement tools used to create products and structures. Prereq: 161, 305, and 306.
411 Managing Occupational Education Programs (3) Unique needs of instructors of occupational education: laboratory organization and safety; community resources and related advisory committee activities; building youth clubs; and adapting instruction for special needs learners. Prereq: 325.
415 Coordination Techniques (3) An online course with an overview of policy, procedures, roles, and responsibilities necessary for the analysis, design, development, implementation, and evaluation of a cooperative education program in vocational education. Prereq: HRD 210. Sp
420 Introduction to Adult Education (3) Breadth of adult education activities and the diversity of adult clientele, including opportunities for professional practice apart from traditional institutional settings. A
421 Adult Education Program Design and Management (3) Process of program development and special application to adult training programs. Sp
422 Adult Development and Training (3) Application of adult development concepts to design and management of training programs for adults. Sp
423 Methods of Teaching Basic Business and Accounting (3) Instructional methodology for teaching secondary-level and secondary-level basic business and accounting. Integrative strategies are introduced and developed. F
430 Principles and Best Practices of Business Education and Marketing Education (3) Course provides an overview of how Business Education and Marketing Education curricula are designed. Special attention is given to the national standards, state-based curricular frameworks, and learner competency expectations which shape Business Education and Marketing Education instruction. F
434 Teaching Conceptual and Human Skills-Based Business Education and Marketing Education (3) Methods and techniques for teaching Business Education and Marketing Education conceptual skills and human skills-based on subject matter content. Involves exploration of theoretical models, research and practical applications. F
441 Materials and Processes I (3) Classification systems of materials, control methods, survey of production processes, ie. Separating, forming, conditioning, and combining. C
442 Materials and Processes II (3) Production of industrial materials, primary process, product planning and design, materials specification matching to product. Includes problem solving and hands-on activities. Prereq: 371 and 441.
452 Technology in Learning Environments (3) The fourth in a series of four online courses addresses the use of diverse technology for creating and facilitating instruction and learning. Involves posting and managing an online lesson. Interactive strategies that aid in stimulating, channeling, and sustaining learning. Prereq: HRD 325 and 330. E
455 Learner and Program Evaluation (3) This online course trains students to assess the effectiveness of training or educational programs, develop performance-based measures, evaluate job performance, and measure learner progress. Prereq: HRD 210 or equivalent.
471 Principles of Supervision/Leadership (3) This online course examines management problems such as motivation, communication, interpersonal relationships, and leadership. Prerequisite: HRD 285. Sp
473 Integrating Organizational and Career Development (3) This online course examines the role of technology in the development of management systems associated with employee empowerment, involvement, and reorganization. Effective utilization of human resources through the creation and development of management systems, communication in groups, meetings, and training programs. Prereq: HRD 210 or equivalent and HRD 471.
475 Human Resources Policies, Practices, and Procedures (3) This course examines employer/organizational activities related to personnel and human resource programs, employee recruitment, employee assistance programs, exiting considerations, and legal aspects. Prereq: HRD 210 or equivalent and HRD 471.

476 Supervised Occupational Experience (3) Practical field experience in business/industry/community-based settings related to the area of study. May be repeated for a maximum of 9 credits. Prerequisites: Senior standing and approval of advisor. E.

479 Internship in Human Resource Development (3-9) Emphasis on the knowledge gained in the classroom applied in a Human Resources and/or Training Department in various business areas. The internship is the capstone experience to be completed after HRD 452, 473 and 475 and all other prerequisites. Students who have only 473 or 475 remaining may petition the intern coordinator to take the remaining course concurrent with 479. Must be a senior with a GPA of 2.7. May be repeated to a maximum of 9 semester hours. Satisfactory/No Credit Only.

480 Directed Study in Human Resource Development (3) Topic arranged by student in collaboration with a supervising faculty member. Approval form must be filed in the departmental office. May be repeated for a maximum of 6 hours. Prereq: Junior or senior standing.

482 Directed Study in Family and Consumer Sciences Education (3) Preparation for teaching and managing secondary school programs in Family and Consumer Sciences.

485 Special Topics in Human Resource Development (1-3) Topics to be assigned. May be repeated.

HUMAN SERVICES (532)

220 Introduction to Human Services (3) Focus on related societal values and contemporary issues in human services. Emphasis on the various professions, settings, and roles as students examine the complexities of human needs and social problems.

330 Thinking About People (3) Development of thoughtful, informed and empathetic attitudes toward human beings—those providing services as well as those receiving service. Prereq: Progression to the major. F, Sp

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. F

390 Information Interpretation and Assessment (3) Information gathering and assessment for human services and identification of correlations with human service practice. Formulating questions, identifying relevant data, using related resources, interpreting and applying this information in a practical setting. Prereq: Progression to the major. Sp

400 Prefield Seminar (2) Prefield Seminar (2) Preparation for field sequence. Exploration of field/work settings within human service through in-class activities, field trips, and guest lectures; includes current topics and professional behavior. S/NC only. F, Sp

420 Human Services Methodologies II (3) Includes reality therapy, behavior modification, 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, 330. Coreq: 440. F

430 Working Within The System (3) Capstone Experience. Context within which the need for human services arises and analysis of the process through which such services are provided. Prereq: Progression to the major, 330; senior standing or consent of instructor. Sp Writing emphasis course.

440 Human Services Field Work (6) Human Services Field Work (6) Practical field experiences within an approved and supervised human services setting. Explores day to day activities within a human services organization. Develops specific helping skills; involves student in roles and function of human services profession; provides direct service in a supportive learning setting. For majors only. Prereq: Progression to the major, 380, 400, 420. S/NC only. F, Sp, S

441 Human Services Field Work II (6) Human Services Field Work II (6) Practical field experience within an approved and supervised human service setting in a different venue than previous 440 field placement. Explores day to day activities within a human service organization. Develops specific helping skills; involves student in roles and function of human services profession; provides direct services in a supportive learning setting. For majors only. Prereq: 420, 440. S/NC only. F, Sp, S

450 Special Topics in Human Services (3) Issues, methods, values, and trends with implications for helping professions, such as legal, ethical, political, and self-awareness education. May be repeated. Maximum 9 hours.

491 Foreign Study (1-15) courses of instruction 185

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

INFORMATION SCIENCES (560)

101 Information Foundations (3) Nature of information: sources, value, creation, organizing principles, transfer, uses in society. Issues: ethics, privacy, copyright, preservation, national information policy, equity of access. Information oriented careers. Undergraduate credit only.

102 Technologies for Information Retrieval (3) Principles, selection, and use of computer-based information management applications; software identification and task appropriateness; telecommunications, utilities, and memory management systems; multiple operating systems and technology for national network connections; information services via computers. Undergraduate credit only.

310 Information Seeking: Resources and Strategies (3) Information as critical resource for research and decision making; emphasis on planning, executing, and evaluating information searches. Focus on topic of student’s major. Undergraduate credit only.

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.

350 Information Consumer (3) Information in society, information economy, knowledge/learning society; publishing and information technology, networks, information overload/ anxiety, science fraud, gatekeeping concepts; updating systems, environment scanning; information consumption techniques. Undergraduate credit only.

430 History of the Book (3) History of writing and various methods of bookmaking.

450 Writing About Science, Technology and Medicine (3) (Same as Journalism 450)

485 Introduction to Electronic Communications and Information Resources on the Internet (3) Exploration of worldwide information and communications resources including e-mail, newsgroups, and the world wide web. Discussion of information issues including copyright, censorship, privacy, and access.

486 Advanced Electronic Communications and Information Resources on the Internet (3) Exploration of advanced information and communications issues, resources and tools including forms, scripting and search engines. Prereq: IS 485 or consent of instructor.

490 Information Environment (3) Generation, production, management, dissemination, and use of information. Roles of information in society, information seeking and user behavior, information industry, economics of information products and services, technological and organizational change, information professions, and issues. E, Su/A

INTEGRATED PLANT SYSTEMS (IPS)

230 Introduction to Crop Science (3) Introduction to world crop and food production systems. Emphasis on production terminology, origin and development, environmental interactions, plants and human nutrition, ecologically sound practices, crop physiology, genetics, and practices of crop production. Prereq: One year biological science. 2 hours lecture and one 2-hour lab. F

334 Weed Management (3) Principles of weed interference, integrated management, herbicide selectivity and behavior, specific recommendations for various crop and non-crop situations. Prereq: Environmental and Soil Sciences 210. 2 hours and 1 lab. F

340 Turfgrass Management (3) Practical turfgrass management; cultivar selection, identification, and establishment; basic applied irrigation programs, mowing, and irrigation practices, and thatch and compaction control; pest identification and basic controls. Prereq: Environmental and Soil Sciences 210. 8 hours biological sciences or consent of instructor. 2 hours and 1 lab. F

431 Physiology and Ecology in Agroecosystems (3) Plant physiology and ecology applied to crop production and management. Emphasis on plant physiology and ecology principles as they relate to crop production practices from seedling to harvesting and handling of crops with their environment and sustainable agroecosystems. Prereq: 230. 2 hours lecture one 2-hour lab. F

433 Agricultural Pesticides (3) Regulation of pesticide development, manufacture, transportation, marketing and use. Structure, use, mode 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

INSTRUCTIONAL TECHNOLOGY, CURRICULUM, AND EVALUATION (577)

203 Field Study in Education (1-3) Problems of persons in active service in the field, includes methods of appraisal and student center relationships, and organization. May be repeated. Maximum 6 hours.

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

324 Applications of Instructional Technology in Elementary and Middle School Teaching (1-3) Applications of instructional technology in the elementary and middle schools with an emphasis on computers. Exposure to and experience with using educational software. May be repeated. Maximum 3 hours. Prereq: Admission to Teacher Education Program.

355 Introduction to Secondary Schools (3) Aspects of teaching in grades 7-12, including curricular program and roles and responsibilities of secondary school teachers and administrators. Prereq: Admission to Teacher Education Program.

404 Problems in Improvement of Instruction (1-3) Special conferences, workshops, or in-service programs. Prereq: 479. May be repeated. Maximum 6 hours. Satisfactory/No Credit Only. E

475 Utilization of Instructional Media (3) Basic communication process, need for instructional media, instructional development, selection and utilization of basic media, and basic software production techniques. (Same as Library Information Science 475)

476 Instructional Media in Elementary Education (1) Basic operation of audiovisual hardware, selection and utilization of materials, and basic production skills needed for effective communication in the elementary classroom. Media Lab experience in production of AV software.

486 Introduction to Instructional Computing (3) Classroom uses of computers, applications for teachers, overview of computer operation and software for teachers of all grades. Prereq: Admission to Teacher Education.

INDEX TO COURSES
172 or consent of instructor. Sp.

261 Materials and Resources for Interiors (2) Agronomic principles of crop production and management. Crop improvement, crop and disease management, harvest and utilization of major field crops. Prereq: 230. 2 hours lecture and 2 hours lab. Sp.

440 Advanced Turfgrass Management (4) Principles and scientific basis of turfgrass culture; adaptation, ecology, physiology, soil fertility, and grass nutrition; climatic influences on grass culture; physiology of clipping and water management; design, construction, and management of golf courses; pest management. Five hour studio. Prereq: 340 or consent of instructor. 3 hours and 1 lab. Sp.

453 Principles of Plant Breeding (3) Genetic principles and techniques used in crop improvement. A consideration of breeding methods for the various types of plant reproduction systems and their application. A discussion of heritability estimation, genetic advances through selection and the theory upon which breeding methods are based. Prereq: Plant Sciences and Landscape Systems 471 and Biology 240. 2 hours lecture and one 2-hour lab. S, A

INTERDISCIPLINARY PROGRAMS (581)

100 Selected Topics (1-3) May be repeated. Maximum credit 6 hours.

400 Selected Interdisciplinary Topics (1-12) Acceptable for major or minor credit in any Interdisciplinary Program with the 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.

491 Foreign Study (1-15) Registration by permission of director of Interdisciplinary Studies.

492 Off-Campus Study (1-15) Registration by permission of director of Interdisciplinary Studies.

493 Independent Study (1-15) Registration by permission of director of Interdisciplinary Studies.

INTERIOR DESIGN (582)

141 Introduction to Interior Design (2) Orientation to the profession; relationship to allied fields; contemporary development; philosophical approaches. Open only to majors in interior design and architecture or consent of instructor. F

171 Visual Studies (3) Classification and properties of two and three-dimensional visual organization; design principles; visual and spatial elements within simple and complex visual systems; role of movement in experiencing scale and volumetric space. Three hour studio. Open only to majors in interior design and architecture. Prereq. 141 or consent of instructor. F

200 Human-Environment Systems (3) Role of culture in defining environment; physical, social and conceptual aspects of human-environment systems; impact of environment on human behavior, feelings and values; mutual-casual properties of behavior-environment systems. (Same as Urban Studies 200.) F

221 Theory of Color (2) Introduction to basic color theory and its application to interior environments. Explores aesthetics and psycho-physiological effects. Sp.

231 Micro-Computers for Interior Design (3) Introduction to computer applications. File management systems, word processing, publishing, database and other software applications in various aspects of project design and management, including cost estimating and budget constraints, optimizing design criteria, proxemic analysis and information and resource management. Three hour studio. Prereq: Math 119 or consent of instructor. Coreq: 271. Interior Design majors only. F

261 Materials and Resources for Interiors (2) The development and application of materials and resources used in interior architectural space. Prereq: 171 or Arch 172 or consent of instructor. Sp.


272 Fundamentals of Interior Design II (6) Problem solving, spatial organization of micro environments, increasingly larger scale; communication of total design solution graphic, audio and photographic techniques; emphasis on the use of color. Five hour studio. Prereq: 271. F

311 History of Interior Architecture (4) Interior architecture, decoration and decorative arts within cultural context, ancient through nineteenth centuries, emphasis on Italy, France, England, and America. Prereq: Art History 172 and 173 or consent of instructor. F

312 History of the Contemporary Interior Architecture (2) Interior architecture, furniture, design philosophies, nineteenth century roots for twentieth century developments, Europe and America. Design as influenced by movements in the fine arts, technological advances, cultural context. Prereq: 311 or consent of instructor. Sp.


371 Intermediate Interior Design I (6) 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. Five hour studio. Prereq: 272 and Third year standing in interior design. F

372 Intermediate Interior Design II (6) Studio problems of intermediate complexity with emphasis on programing and schematic design phases; in-depth analysis of current programming methods; integrates and extends previous knowledge of spatial organization and planning of micro and macro environments. Five hour studio. Prereq: 231, 371. Sp.

400 Proxemics (2) Analysis of space and behavior within a cultural context. Application to design and the design process. Examination of theoretical foundations and concepts from environment and behavior. Simulation techniques and methods for identifying behavioral design requirements. Two hour studio. Prereq: 200, 231. Coreq: 471 or consent of instructor. F

411 History of American Interior Architecture (3) Historical development in interior architecture and decorative arts within cultural context, colonial era through nineteenth century. Prereq: 311 or consent of instructor.

417 Innovation: Interior Design I (1-4) Advanced research in interior design problems for juniors or seniors. May be repeated. Maximum 8 hours. Consent of Interior Design faculty.

420 Practicum for Interior Design (3) Supervised experience in a professional design firm; business practices, project management and design philosophy. Prereq: 360, 372 and consent of instructor.


464 Environmental Factors in Design (3) Human factors and associated research techniques and design methodologies related to the built environment.

471 Advanced Interior Design I (4) Non-residential studio problems of advanced complexity; integrates and extends previous experiences utilizing systematic design methodologies. Five hour studio. Prereq: 372, 420. Coreq: 400, or consent of instructor. F

472 Advanced Interior Design II (6) Comprehensive studio problems of advanced complexity; integrates and extends previous experiences utilizing systematic design methodologies. Six hour studio. Prereq: 471 or consent of instructor. Sp.

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. Two hour lecture and two hour studio. Prereq: 471 or Arch 372 or consent of instructor. Sp.

484 Needs Assessment and Design Programming (3) Systematic methodology and multidisciplinary research methods as a part of design problem solving experience. Appropriate for evaluating various environments: commercial, corporate, hospitality, institutional, and retail. Seminar. May be repeated for a maximum of 4 hours credit based on particular international experience. Prereq: Consent of all interior design faculty.

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. E

494 Directed Studies in Environmental Design (1-3) Independent research in environmental design analysis. 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 (3) This course will examine the importance of foreign trade at the local, state, and national levels. An interdisciplinary team of faculty from the colleges of Business and Arts and Sciences will provide an overview of the value of language study 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; revised and corrected, technical 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.) F

402 Petrarch and Boccaccio (3) Prereq: 212 or consent of instructor. (Same as Medieval Studies 402.) F

403 Literature of the Rinascimento (3) From Pucci 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) F

410 Italian Theatre (3) Survey of Italian theatre from Renaissance to present. Prereq: 212 or consent of instructor.

414 Italian Cultural Studies (3) This course will examine Italian culture as a set of practices characteristic of Italian society, from its mode of material production to its eating habits, dress codes, celebrations, and rituals. The objective of the course is to achieve a greater understanding of contemporary Italian culture.
JAPANESE (589)

151-152 Elementary Japanese I,II (5,5) (Same as Asian Languages 151-152.)

251-252 Intermediate Japanese I,II (5,5) (Same as Asian Languages 251-252.)

313-314 Japanese Literature in English Translation (3,3) (Same as Asian Languages 313-314.)

351-352 Advanced Japanese I,II (4,4) (Same as Asian Languages 351-352.)

451 Readings in Japanese Literature (3) (Same as Asian Languages 451.)

JOURNALISM (594)


203 Editing (3) Methods and practice in judging news, editing copy, writing headlines and designing newspapers and magazines. Emphasis on precise word use and news display. Prereq: 200.

280 Communications Graphics (3) Principles and practice in the production of communications. Emphasis on graphic design, typography, illustration and photography, printing and production techniques and publication design. Lectures and laboratory. Prereq: 200 or 201, or consent of instructor.

290 Photojournalism (3) Principles and practice of photography as a creative tool of communication. Basic camera technique, darkroom work, historical and contemporary photojournalism. Lecture and laboratory.

310 Feature Writing (3) Skills of journalism for writing feature articles for newspapers, magazines and company publications. Critiquing of students' work in writing workshops, and writing short in-class pieces as assigned.


403 International Communications (3) Development and operations of world mass communications channels and agencies. Comparative analysis of media, media practices, flows of news throughout the world. Print and broadcast systems studied in terms of relevant social, political, economic, and cultural factors. Relation of communication practices to international affairs and understanding.

412 Opinion Writing (3) Analysis of editorial positions, practices, and pages. Writing editorials and columns for newspapers, magazines, and company publications, with emphasis upon study and use of rhetorical devices and logic. Prereq: 203 or consent of instructor.

414 Magazine Article Writing (3) Techniques of writing in-depth articles for mass circulation and specialized magazines. Organizing and presenting material, with attention to problems in areas such as business, science, agriculture, and the humanities. Prereq: 203 or consent of instructor.

416 Issues in Journalism (3) Topics vary. May be repeated. Maximum credit 6 hours. Prereq: Consent of instructor.

420 Print Media Management (3) Current business practice among print news media, especially newspapers. Problems in management and production, and the outlook for new technologies. Prereq: 6 hours math and/ or accounting, and senior standing.


433 Advanced Editing (3) Primary focus is on sensitivity to language and editing skills. Includes headline writing, layout and production. Prereq: 203.

444 Journalism as Literature (3) Study of writers from the 17th century to the modern era whose works have endured as both journalism and literature. An emerging genre called literary journalism will be examined as a means of cultural reporting with a personal narrative style. Prereq: Consent of instructor.

450 Writing about Science, Technology, and Medicine (3) Writing workshop to analyze examples of successful science and writing articles for general public based on scientific journals, news conferences, technical meetings and interviews. Prereq: Consent of instructor. (Same as Information Sciences 450.)

451 Environmental Reporting (3) Writing for news media on such environmental issues as strip-mining, water pollution, air pollution, allergens, nuclear power, fossil fuel power, and solid wastes. Students hear presenta tions from and interview experts in environmental science and reporting. Exemplary popular literature in environ mental reporting is reviewed. Prereq: 203 for majors; consent of instructor for non-majors.

455 Issues in Science Communications (3) May be repeated. Topics vary. Prereq: Consent of instructor.

456 Science Writing as Literature (3) Survey of important science writing for the general public across the spectrum of science, engineering, and medicine. Works by authors such as Arthur C. Clarke, Stephen J. Gould, and Richard Selzer will be analyzed for literary qualities in a quest to understand why some science writing succeeds. Prereq: Consent of instructor.


465 Women and Mass Media (3) Media effects on women. Media coverage and portrayal of women. Historical and current status of women in mass communication industries. (Same as Women's Studies 465.)

490 Advanced Photjournalism (3) Advanced principles and methods of black-and-white photography. Introduction to color photography, News and feature photographs, photo essays. Prereq: 290 or consent of instructor.

491 Foreign Study (1 - 15) Advance approval of hours and topics by faculty advisor required for registration. May be repeated for maximum of 15 hours credit.

492 Field Experience (1-2) Approved internships and other supervised practice in journalism. May be repeated for a maximum of 4 credit hours. Prereq: 360, senior standing, and consent of instructor. Satisfactory/No Credit grading only.

493 Independent Study (3) May be repeated for a maximum of 6 hours. Prereq: Consent of instructor.

Latin-American Studies (600)

251-252 Introduction to Latin American Studies (3,3) (Same as History 255-256.)

311 Aspects of Luso Brazilian Literature (3) (Same as Portuguese 311.)

314 Peoples and Cultures of Mesoamerica (3) (Same as Anthropology 314.)

315-316 Aspects of Luso-Brazilian Literature (3,3) (Same as Portuguese 315-316.)
LEADERSHIP STUDIES (288)

200 Student Leadership Development (3) Designed to enhance the knowledge and skill of emerging student leaders and includes theoretical and experiential content related to leadership role, skill, and effectiveness. Satisfactory/No Credit grading only.

LEGAL STUDIES (617)

300 Law in American Society (3) (Same as Political Science 330.)
331 Sociological Research (3) (Same as Sociology 331.)
340 Women, Politics, and the Law (3) (Same as Women's Studies 340.)
344 Professional Responsibility (3) (Same as Philosophy 344 and Religious Studies 344.)
362 Roman Law (3) (Same as Classics 362.)
392 Philosophy of Law (3) (Same as Philosophy 392.)
400 Law in American Society (3) (Same as Communication 400.)
430 United States Constitutional Law: Sources of Power and Restraint (3) (Same as Political Science 430.)
431 United States Constitutional Law: Civil Rights and Liberties (3) (Same as Political Science 431.)

442 Administrative Law (3) (Same as Political Science 442.)
451 Criminal Justice (3) (Same as Sociology 451.)
455 Society and Law (3) (Same as Sociology 455.)
469 Freedom of Speech (3) (Same as American Studies 469 and Speech Communication 469.)
470 International Law (3) (Same as Political Science 470.)
490 Language and Law (3) (Same as English 490.)
496 The Rhetoric of Legal Discourse (3) (Same as English 496.)

LINGUISTICS (623)

200 Language, Linguistics and Society (3) Introduces linguistics with focus on language development and use of language by individuals and groups. Prereq: Completion of freshman English or equivalent.
371 Foundations of the English Language (3) (Same as English 371.)
372 The Structure of Modern English (3) (Same as English 372.)
400 Topics in Linguistics (3) Content varies. May be repeated. Maximum 6 hours.
411 Linguistic Anthropology (3) (Same as Anthropology 411.)
423 The Development of Diachronic and Synchronic Linguistics (3) Development of Western linguistic thought from the Hebrews and Greeks through modern times. Readings from Boas, Sapir, Bloomfield, and others. Prereq: 9 hours of courses required for the Linguistics major (300-level or above) 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 426, Russian 426, and Spanish 426.)
429 Romance Linguistics (3) (Same as French 429 and Spanish 429.)
431 Topics in Hispanic Linguistics (3) (Same as Spanish 430.)
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.)
476 Second Language Acquisition (3) (Same as English 476.)
477 Pedagogical Grammar for ESL Teachers (3) (Same as English 477.)
485 Special Topics in Language (3) (Same as English 485.)
490 Language and Law (3) (Same as English 490.)
491 Foreign Study (1-15)
492 Off-Campus Study (1-15)
493 Independent Study (1-15)

LOGISTICS AND TRANSPORTATION (624)

400 Special Topic in Logistics and Transportation (1-6) Seminar in current problem areas 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.

411 Logistics and Transportation Analytical Methods (3) Introduction to the principle analytical tools and models used in logistics and transportation; applications of analytical tools to logistics and transportation problems; using analytical methods to support negotiations. Prereq: Business Administration 331.
441 Global Logistics and Transportation (3) Multinational logistics strategy, import-export process, global sea, air and land transport systems, governmental and industry controls. Prereq: Business Administration 331.
450 Logistics Information Infrastructure Strategy and Design (3) An introduction to the use of information tools to design and create applications to support business processes in networked organizations. Students will be expected to design and use groupware, both static and dynamic web sites, relational-data base applications and e-commerce applications. Prereq: 411, 441, senior standing.
469 Seminar in Logistics and Transportation Strategy (3) Senior seminar in development of strategy for logistics and transportation in a supply chain perspective. Prereq: 411, 441, Statistics 365, senior standing.
492 Logistics and Transportation Off-Campus Study (1-6) Satisfactory/No Credit grading only. Prereq: Consent of instructor.
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.

MANAGEMENT (625)

300 Organizational Management (3) Not for Business majors. The study of the theories of organizations and the practice of management within them. Prereq: Business Administration 201 and Junior standing.
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: Business Administration 341, F, S.
341 Operations Management (3) Design of operations systems. Process and methods analysis and measurement, layout and location, project management, operational forecasting. Prereq: Business Administration 341, F, S.
401 Business Strategy/Policy (3) Strategy and policy which affect the character and success of the total enterprise. Capstone 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 admitted to a business major.
410 Management Science (3) Introduction to quantitative decision models and their integration into microcomputer-based decision support systems. Topics include linear, dynamic and network programming, as well as decision analysis, Markov, inventory and queuing models. Prereq: Mathematics 123, 125 and Statistics 201.
411 Labor Relations and Collective Bargaining (3) American labor history, structure, and philosophy of contemporary unions, nature of collective bargaining, and dispute settlement.
421 Total Quality Management (3) TQM is characterized by three main principles: customer focus, continuous improvement, and teamwork. Course focuses on the managerial perspective that is necessary to successfully implement and sustain a TQM philosophy, while briefly introducing its underlying statistical concepts. Prereq: Statistics 201, Business Administration 341, F, S.
431 Human Resource Management (3) Theory, methods, and issues pertaining to successful personnel management. Prereq: Business Administration 341, Senior standing, F, S.
432 Human Resource Management II (3) Methods of identifying, developing, implementing, and evaluating various 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.
MARKETING (632)
300 Marketing and Supply Chain Management (3)
Not for business majors. Practical applications-oriented overview of what every manager needs to know in order to effectively provide value to customers of the organization, and enhance performance through the systematic, strategic coordination of traditional business functions within a particular company and across businesses. Prereg: Business Administration 201 and Junior standing.

310 Buyer Behavior—Analysis for Marketing (3)
Comprehensive framework of consumer behavior concepts and processes. Application to market analysis, design and control of marketing programs. Prereg: Business Administration 332.

320 Marketing Research and Information Planning (3)
Marketing Research process from its inception to implementation of the study’s results. Student should be able to critically evaluate a research project as to whether the data is sufficient to address the research project. Major writing requirement. Prereg: Business Administration 332.

400 Special Topics in Marketing (3)
Topics of current interest may be offered. May be repeated once for additional credit provided topic is different. Maximum 6 hours. Prereg: Business Administration 332.

410 Advertising Management (3)
Business side of advertising, budget, account representation, strategic planning, measuring ad effectiveness, advertising ethics. Managerial focus emphasizing types of decision-making, annually confronting promotion executives. Prereg: Accounting 202 and Marketing 310; or consent of instructor.

420 Sales Force Management (3)
Personal selling function and its management in the business firm. Focuses on the activities and problems of first line sales managers. Subjects include organization, recruiting, motivating, forecasting, territory design, and evaluation. Prereg: Business Administration 332.

430 Marketing Analysis and Strategy (3)
Approaches for finding market position, gaining share, and controlling market opportunities. Concepts, types of information and analysis techniques combined into a framework for strategic decisions. Major writing requirement. Prereg: Business Administration 201; Accounting 202 and Marketing 310, 330.

440 International Marketing (3)
Specific issues involved in entering overseas markets and conducting marketing operations on a global as opposed to a “domestic” scale. Topics include international operations, assessing global operations on a global as opposed to a “domestic” scale. Specific issues involved in entering overseas markets and conducting marketing operations on a global as opposed to a “domestic” scale. Maximum 9 hours. Prereg: Consent of instructor.

450 Services Marketing (3)
Specific issues involved in developing marketing strategy for service firms. Taken the perspective of both customer and the manager, understanding determination and delivery of service quality. Prereg: Marketing 310.

470 Marketing Forecasting (3)
Overview of techniques, systems and management approaches used to develop sales forecasts of markets. Performance measurement of sales forecasting and the use of forecasts in business planning are also covered. Prereg: Marketing 310 and 330.

492 Marketing Off Campus Study (1-6)
Satisfactory/No Credit grading only. Prereg: Consent of instructor.

493 Independent Study (1-6)
Directed research on subjects of mutual interest to student and staff member. May be repeated. Maximum six hours credit. Prereg: Consent of instructor.

497 Honors I (3)
Topics may include nonbusiness marketing applications, macroenvironmental issues, market segmentation, international marketing, services marketing, marketing channels and related issues. Prereg: Consent of instructor.

MATHEMATICS (641)
100 Intermediate Algebra (3)
First degree equations and inequalities, polynomials, rational expressions, exponents, graphing, second degree equations and inequalities, systems of equations, introduction to exponential and logarithmic functions. Prereg: 251 or Math 100. Course does not count toward the total for the major or the cumulative general education requirements. It fulfills any mathematics requirement, A, B, C, NG grading.

109 Algebra Workshop (1)
Self-paced tutorial center for students taking Math 119, 130, or 141 who need additional help (as determined by placement exams, assessment center, or performance instructor). Individual and computerized instruction on various pertinent algebraic skills. To receive credit, a student must pass the Math 119, 130, or 141 class in which he/she is currently enrolled. May be taken for credit three times. S/NC grading.

110 Algebra 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. Topics include life expectancy, annuities, and loan calculations. Prereg: Math 110. 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. Prereg: 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.

119 College Algebra (3)
A review of algebraic functions, equations, and inequalities for students who satisfy the course prerequisites for 123 or 125 but whose placement test scores indicated additional preparation is necessary. Students who receive a grade of C or better in an algebra course numbered 123 or higher (except for 201 or 202) may not subsequently receive credit for 119. 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.

123 Finite Mathematics (3)
For students not planning to major in the physical sciences, engineering, mathematics, or computer science. Exponential and logarithmic functions, interest and annuities, linear systems and matrices, optimization. Prereg: Two years of algebra and one year of geometry, plus satisfactory placement test scores, or Math 110 or 130.

125 Basic Calculus (3)
For students not planning to major in the physical sciences, engineering, mathematics, or computer science. Exponential, logarithmic, and trigonometric functions. Prereg: No student who has received credit for Math 141 or 152 with a grade of C or better may subsequently receive credit 125. Two years of algebra and one year of geometry, in high school plus satisfactory placement test scores, or 119 or 130.

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 scores indicate additional preparation is necessary. Students who have earned a grade of C or better in an algebra course subsequently receive credit 130. Prereg: 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.

141-142 Calculus I, II, (4,4) Standard first-year course in single variable calculus, especially for students of science, engineering, and computer science. Differential and integral calculus with applications. Prereg: 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.

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 with an excellent high school mathematics background are welcome. Credit will not be given for both 147 and 141 or 152.

151-152 Mathematics for the Life Sciences I, II (3,3) For students majoring in the Life Sciences. Does not serve as a prerequisite for 231 or 241. Topics include: descriptive statistics, linear regression, discrete probability, matrix algebra, difference equations, calculus, and differential equations. Emphasis on applications in the Life Sciences. Includes computer projects. Prereg: Two years of algebra, a year of geometry, and half a year of trigonometry in high school, plus satisfactory placement test scores, or Math 100. Students who receive a grade of C or better in Math 141 cannot subsequently receive credit for Math 152.

171 Computer Literacy for Mathematics (3) Introduction to computers, the internet, mathematical packages and applications for prospective mathematics majors. Prereg: Math 141.

200 Matrix Computations (1) Introduction to matrix calculations, including determinants, eigenvalues and eigenvectors. Prereg: Students in the College of Engineering. Not for Business majors. Students who have received a grade of C or better in 251 may not subsequently receive credit 200. Prereg: 241 or 247.

201 Structure of the Number System (3) Problem solving, sets and relations, number systems, integers, elementary number theory, rational numbers and decimals. Prereg: Two years of algebra and one year of geometry in high school and satisfactory placement test score.

202 Probability, Statistics, and Euclidean Geometry (3) An introduction in single variable calculus, especially for students of central tendency and variance. Basic plan and three-space geometry, congruence and similarity, constructions with compass and straightedge, transformations, areas and volumes of the measurement. Turtle graphs. Prereg: Two years of algebra and one year of geometry in high school and satisfactory placement test score.


241 Calculus III (4) Functions of variables in two or more dimensions include partial derivatives, vectors, partial vector differentiation, multiple integration, and selected topics in vector calculus. Prereg: 142 or 148.

247 Honors: Calculus III (4) Prereg: 147-148 or invitation of the department.

251 Matrix Algebra I (3) First course in the algebra of simultaneous linear equations and matrices. Includes Gaussian elimination, system solving, elementary operations, vector spaces, linear transformations, eigenvalues, and eigenvectors. Prereg: 141-142.

257 Honors: Matrix Algebra I (3) Prereg: 148 or invitation of the department.

299 Studies in Mathematics (1-3) May be repeated. Maximum 9 hours. Prereg: Consent of instructor.

300 Introduction to Abstract Mathematics (3) Algebra of sets, functions, relations, mathematical induction, algebraic structure of the real number system, order properties, and completeness. Prereg: Math 142.

323 Probability and Statistics (3) 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. Prereg: 241 (or 247) and 300.

341 Analysis I (3) Introduction to the theory of the real number system, limits of sequences, and functions of a real variable. Prereg: (or 247) and 300.

351 Algebra I (3) Introduction to abstract algebra, emphasizing integers and polynomial rings. Prereg: (or 257) and 300.

371 Numerical Algorithms (3) Development and application of fundamental algorithms for finding roots of equations, solving systems of linear equations, interpolation, fitting data using least-squares, differentiation, integration, and solving ordinary differential equations. Prereg: A high level programming language (e.g., 171 or Computer Science 102), 231, 241 (or 247), and basic matrix algebra (e.g., 200 or 251 or 257).

399 Studies in Mathematics (1-3) May be repeated. Maximum 9 hours. Prereg: Consent of instructor.
400 History of Mathematics (3) Development of major ideas in mathematics from ancient to modern times and the influence of these ideas in science, technology, and philosophy. Prereq: 251 (or 257) and 300. Writing emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

401 Mathematics and Microcomputers (3) Primarily for students seeking certification as mathematics teachers at the secondary level. The use of microcomputers to study concepts and problems in mathematics. Does not satisfy major requirements for a B.S. or M.S. in mathematics. Prereq: 141 or 147.

403 Mathematical Methods for Engineers and Scientists (3) Matrix computations, numerical methods, partial differential equations, Sturm-Liouville Theory and special functions, and numerical analysis using the computer. Does not satisfy major requirements for a B.S. or M.S. in mathematics. Prereq: 231, 241, and familiarity with an operating system and a programming language (e.g., 171 or Computer Science 102).

404 Applied Vector Calculus (3) Topics from multivariable and vector calculus including line and surface integrals, the divergence theorem and the theorems of Gauss and Stokes. Prereq: 241 or 247.

405 Models in Biology (3) Difference and differential equations models of biological systems. Prereq: 142 or 148 or 152.

411 Mathematical Modeling (3) Construction and analysis of mathematical models used in science and industry. Projects emphasized. Prereq: 231, 241, and 251 or 257. Writing-emphasis course.

421 Combinatorics (3) Introduction to problems of construction and enumeration for discrete structures such as sequences, partitions, graphs, finite fields and geometries, and experimental designs. Prereq: 323 or consent of instructor.

423 Probability I (3) Axiomatic probability, multivariate distributions, conditional probability and expectations, methods of moment generating/characteristic functions. Laws of large numbers and the central limit theorem. Prereq: 300 or consent of instructor.

424 Probability II (3) Elements of stochastic processes: Random walk, Markov chains and Poisson processes. Other topics as selected by the instructor. Prereq: 423.

425 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 estimates; statistical hypotheses, Neyman-Pearson theorem; likelihood ratio and other parametric and non-parametric tests; sufficient statistics. Prereq: 423 or consent of instructor.


443 Complex Variables (3) Introduction to the theory of functions of a complex variable, including residue theory and contour integrals. Prereq: 241 or 247.

445-446 Advanced Calculus I, II (3,3) Introduction to the theory of sequences, series, differentiation, and Riemann integration of functions of one or more variables. Prereq: 241 or (247) and 300, or consent of instructor.

447-448 Honors: Advanced Calculus I, II (3,3) Honors version of 445-446. Prereq: 241 (or 247) and 300, or consent of instructor.

453 Matrix Algebra II (3) Advanced topics in matrix theory, 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: 251 (or 287) and 300, or consent of instructor.

457-458 Honors: Abstract Algebra I, II (3,3) Honors version of 455-456. Prereq: 251 (or 257) and 300, or consent of instructor.

460 Geometry (3) Axiomatic and historical development of non-Euclidean and hyperbolic geometry stressing proof technique and critical reasoning. Models of Non-Euclidean geometries. Prereq: 300, 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: 241 (or 247) and 300, or consent of instructor.

471 Numerical Analysis (3) Introduction to computation, instabilities, and rounding. Interpolation and approximation by polynomials and piecewise polynomials. Quadrature and numerical solution of initial and boundary value problems of ordinary differential equations, including stiff systems. Prereq: 371 or consent of instructor. (Same as Computer Science 471.)


475 Industrial Mathematics (3) Modeling, analysis, and computation applied to scientific/technical/industrial problems. Prereq: 231 and familiarity with an operating system and one or more programming languages (e.g., 171, 371, or C, S. 102).

490 Readings in Mathematics (1-3) Open to superior students with consent of department head. Independent study with faculty guidance. May be repeated. Maximum 9 hours. Prereq: Agreement of faculty mentor to supervise independent study. (Same as Mathematics 410.)

495 Seminar in Actuarial Mathematics (1-3) Introduction to principles and problem solving techniques in actuarial sciences with emphasis on the mathematical topics included in the initial Actuarial Exams. Prereq: 241, 251, and 392. Writing-emphasis course.

499 Seminar in Mathematics (1-3) Topics will vary. Will require out-of-class projects and in-class presentations by students. Students must register for the number of credit hours announced for a particular seminar. May be repeated. Maximum 9 hours. Prereq: Consent of instructor.

MATHEMATICS EDUCATION (642)

485 Teaching of Mathematics, Grades 7-12 (3) Preparation of teaching plans, evaluation, materials for teaching mathematics; teaching simulation and directed observation in schools. Prereq: Admission to Teacher Education Program.

MEDICAL TECHNOLOGY (669)

410-411 Microbiology (4,4) Laboratory work in bacteriology, mycology, and parasitology. Emphasis on pathogenic bacteria and fungi, their sources, methods of culture, techniques of identification, and evaluation of antibiotic sensitivity. Gross and qualitative chemical examination of feces and methods of identification of protozoas and helmith parasites of man.

420-421 Clinical Chemistry (5,5) Clinical aspects of biochemical technology, including overview of principles and instrumentation, and laboratory procedure in clinical laboratories. Prereq: 300, or consent of instructor. (Same as Art History 431.)

451.)

422 Clinical Immunology (2) Detection of antibodies and preparation of blood components for transfusion. Safety control methods standard to efficient blood bank.

450 Clinical Serology and Immunology (2) Performance and interpretation of broad range of clinical serological and immunological procedures with emphasis on principles and clinical correlation. Formal lecture series included.

470 Orientation and Basic Techniques (1) For facilitation of students from campus to hospital community and clinical laboratory. Introduction to medical terminology, ethics, and health team concept. Orientation to basic techniques including procedures for collection and handling of specimens, principles of operation of many laboratory instruments, review of laboratory math, and introduction to quality control procedures. Portions of course extend over entire clinical year.

480 Principles of Supervision and Education in Medicine (1) Seminars in basic principles of management, supervision, and education theories and methods. Comprehensive examination covers entire course.

MEDIEVAL STUDIES (674)

201-202 Medieval Civilization (3,3) Introduction to the medieval experience, approached from interdisciplinary points of view and including philosophy, art and architecture, language and literature, social and political history. Writing-emphasis course.

261 Medieval Culture: Readings from the Early Middle Ages, 500-1000 (3) Critical analysis and interpretation of selected works from the early medieval period. Focus on major types of literature produced during the period 500-1000 A.D., e.g., cultural, religious, rhetorical, lyric, epic, biographical. Includes Augustine's Confessions, Boethius' Consolation, St. Gregory's Life of St. Benedict, The Life of Charlemagne, etc. Writing-emphasis course.

262 Medieval Culture: Readings from the Later Middle Ages, 1000-1500 (3) Critical analysis and interpretation of selected works from the later medieval period. Focus on romantic, allegorical and mystical writings from the high and later Middle Ages, e.g., the Song of the Nibelungen, the Romance of the Rose, St. Bernard's Commentary on the Songs of Songs, Peter Abelard's History of My Calamities. Should be taken in sequence with 261. Writing-emphasis course.

312-313 Medieval History (3,3) (Same as History 312-313.)

322 Medieval Philosophy (3) (Same as Philosophy 322 and Juicid Studies 322.)

372 Northern European Painting, 1350-1600 (3) (Same as Art History 441.)

381 Medieval Art of the West, 800-1400 (3) (Same as Art History 431.)

382 The Art of Italy, 1250-1450 (3) (Same as Art History 451.)

401 Dane and Medieval Culture (3) (Same as Italian 401.)

402 Petrarca and Boccaccio (3) (Same as Italian 402.)

403 Seminar in Medieval Studies (3) Interdisciplinary treatment of selected topics. Content varies. May be repeated. Writing-emphasis course.

405 Medieval Literature (3) (Same as English 401.)

406 Chaucer (3) (Same as English 402.)

410 Medieval French Literature (3) (Same as French 410.)

415 Medieval Architecture (3) (Same as Architecture 415.)

475 Ancient and Medieval Political Thought (3) (Same as Political Science 475.)

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)
INTRODUCTION TO MICROBIOLOGY (684)

210 General Microbiology (3) General properties of bacteria and viruses including physiology, metabolism, genetics, applied bacteriology, pathogenesis, and immunity. May not be used as part of the major in microbiology. 2 hours and 2 labs. E

310 Introduction to Microbiology (3) Introduction to bacteria and viruses including physiology, metabolism, and genetics of bacteria and replication and expression of viruses; bacterial and viral pathogenicity; mechanisms of resistance to disease. Prereq: Biology 140. Coreq: Biology 240. F, Su

319 Introductory Microbiology Laboratory (2) Basic techniques for the examination, cultivation, and identification of microorganisms. Coreq: 310. F

320 Advanced Microbiology (3) Cell and molecular biology of microorganisms, principles and applications in modern technological society. Intended for Microbiology majors. Prereq: 310. Sp

329 Advanced Microbiology Laboratory (2) Laboratory exercises designed to accompany 320. Prereq: 319. Coreq: 320. Sp

400 Laboratory Problems in Microbiology (2-4) Research projects under the direction of a faculty member. May not be used for credit toward requirements for a major. May be repeated for credit. Maximum 9 hours. Satisfactory/No Credit only. Prereq: Consent of instructor. E

401 Undergraduate Research in Microbiology (3) Research experience in laboratory of faculty member with faculty committee guidance. Prereq: Junior or senior standing. 310-319-320-329. 3.2 minimum grade point average in all course work, consent of department head. E

2 Microbiology Senior Honors Thesis (4) Supervised research, preparation and presentation of the senior honors thesis. Prereq: Senior standing. 401, 3.2 minimum grade point average in all course work and 3.5 in Microbiology courses, and consent of department head. E

410 Bacterial Physiology (3) Modern concepts of the structure and function of the bacterial cell. Prereq: 310. F

411 Bacterial Genetics (3) Transmission and expression of genetic information by bacteria. Prereq: 310, 320. Sp

420 Medical Microbiology (3) Disease producing microorganisms including bacteria, rickettsia, chlamydia and fungi. Prereq: 310. Sp

429 Medical Microbiology Laboratory (2) Laboratory exercises designed to accompany 420. 3.2 minimum grade point average in all course work and 3.5 in Microbiology courses, and consent of department head. E

430 Immunology (3) Principles of inflammation and immunity; immunoglobulin structure and theories of formation and diversity; complement, hypersensitivities, cell cooperation and recognitions in immune mechanisms; soluble factors. Prereq: Biology 240. F


470 Microbial Ecology (3) Physiological diversity and taxonomy of microorganisms from natural environments. Emphasis on the functional role of microorganisms in natural and simulated ecosystems. Prereq: 310. F

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

495 Senior Seminar (3) In-depth consideration of microbiological problems of current interest requiring an integration of two or more disciplines. Emphasis on original literature and the experimental basis of current knowledge. Historical background, impact on society, predictions of the future, and the basis of moral and ethical judgements. Written reports required. A capstone course. Prereq: 320 and Senior standing. Writing-emphasis course. May be repeated. Maximum 6 hours. Only 3 hours may be counted toward the major. F, Sp

MILITARY SCIENCE (688)

110 Basic Military Science (2) Formation and functioning of the American defense establishment and its relationship with American society, customs and traditions of the army, aspects of military physical fitness training, fundamentals of small unit tactical procedures, and development of the individual as a team player. Prereq: United States citizen; freshman or sophomore standing. Students with higher standing require consent of instructor. Letter grade only. F

120 Basic Military Science II (2) Introduction of basic leadership theories, principles and skills, with emphasis on effective oral communication. Students present a military skills subject briefing. Skills taught include rifle marksmanship, small unit communications, and land navigation. Leadership lab focuses on leadership training which includes rappelling, tactical formation, drill and ceremony and optional field exercises. Prereq: US citizen, freshman or sophomore standing. Letter grade only.

130 Army Conditioning Program (1) Challenging instruction that concentrates on students’ individual weaknesses and directly applies exercises designed to increase flexibility, muscular strength, and cardiorespiratory endurance. Students also develop the ability to design and lead a fitness program. May be repeated.

200 Basic Military Studies - Practicum (4) 240 contact hours of instruction and evaluation at Fort Knox, Kentucky over a five week period during the summer. Prereq: United States citizen; minimum of 55 credit hours passed and have at least Sophomore standing with two years remaining at the University (either undergraduate, graduate or in pursuit of additional degree); GPA 2.00 or above; legally qualified. Letter grade only. Su

210 Basic Officer Skills I (2) The study of American Military History from 1775 to present. Studies include the record of military forces in peace and war and focuses on the history of military art, memoirs, battle history, technical studies, and the relationship of armed forces with society. Labs teach rappelling, physical training, drill and ceremony, land navigation, and history field trips. Prereq: United States citizen, freshman or sophomore standing; 3 years remaining to complete degree. Letter grade only. F

220 Basic Officer Skills II (2) Practical application of small unit operating techniques to include first aid, marksmanship and weapons familiarization, map reading and land navigation, drill and ceremony, processing of enemy prisoners of war (EPW), execution of individual/unit movement techniques, and the exercise of leadership. Prereq: 210 or consent of the Professor of Military Science. Letter grade only. Sp

310 Advance Military Studies I (4) Discussion and practical exercise of leadership including operation of the military team, small unit unit planning and physical fitness. Tactical and administrative roles in the military are developed in the classroom and applied during leadership labs and field training. Prereq: United States citizen; minimum of 90 credit hours passed and have at least two years remaining to complete degree (undergraduate or graduate); physically qualified; cumulative GPA 2.00 or higher; legally qualified; 3 or 4 years of JROTC (or) 110, 120, 210, 220 completion (or) 200 completion (or) basic training completion. Letter grade only. 3 hours and 1 hour lab. F

320 Advance Military Studies II (4) Preparation of the future second lieutenant to excel at MOS 400 Advanced Camp Practicum. Instruction builds on lessons-learned in the 310 and refines small unit leadership skills, map reading techniques, oral 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) 240 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, 320. Letter grade only. Su

410 Command and Staff Functions (4) Command and staff duties and responsibilities including logistics, personnel systems, efficiency reports, correspondence, training management, briefings, counselling, strategic force production, and non-commissioned officer relationships. Prereq: 310 and 320, or consent of instructor. Letter grade only. 3 hours and 1 hour lab. F

420 Military Ethics and Law (4) Military profession, ethical reasoning, staff operations, military briefings and leadership, military justice system, individual leadership, law of land warfare. Prereq: 310, 320 and 400. 410 or consent of instructor. Letter grade only. 3 hours and 1 hour lab. Sp

430 U.S. Military History, 1754 to the Present (3) (Same as History 451.)

493 Military Leadership Topics (1) Topics on principles and application of military and leader goals. May be repeated for credit. Additional credit provided topic is different. Maximum 4 hours. Letter grade only. Prereq: Consent of instructor. F, Sp

MUSIC EDUCATION (707)

200 Conducting Laboratory (1) A laboratory course designed to afford conducting opportunities for student conductors and to acquaint students with a variety of music literature. May be repeated. Can be taken as elective credit by any student except those registered for MUS Ed 310 and 320. Letter grade only.

201 Field Experience in General Music (1) Observing and assisting in an approved elementary or middle school classroom. May be repeated. Maximum 3 hours. Satisfactory/No Credit only.

210 Class Woodwind Methods I (1) Structure, use, techniques of playing, and care and repair of the flute and saxophone 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. Letter grade only.

212 Class Woodwind Methods II (1) Structure, use, techniques of playing, care and repair of the oboe and bassoon 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. Letter grade only.

220 Class Brass Methods I (1) Structure, use, techniques of playing, care and repair of the upper brass 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. Letter grade only.

221 Class Brass Methods II (1) Structure, use, techniques of playing, care and repair of the lower brass 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. Letter grade only.

230 Class Percussion Methods I (1) 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. Letter grade only.

231 Class Percussion Methods II (1) Ethnic instruments, percussion trends and concepts, percussion literature and training concepts, traditional and non-traditional percussion accessories, steel drums. Letter grade only.

240 Class String Methods I (1) Structure, use, techniques of playing, care and repair of upper string 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. Letter grade only.
MUSIC ENSEMBLE (708)
Prerequisite: By audition or consent of instructor.

101-501 Woodwind Choir (1,1) May be repeated. Maximum 4 hours.
103-503 Small Jazz Ensemble (1,1) May be repeated. Maximum 12 hours.
104-504 Jazz Ensemble (1,1) May be repeated. Maximum 12 hours.
305-505 Studio Orchestra (1,1) May be repeated. Maximum 12 hours.
306-506 Trombone Choir (1,1) May be repeated.
309-509 Tuba Ensemble (1,1) May be repeated.
310-510 Percussion Ensemble (1,1) May be repeated.
311-511 Marimba Choir (1,1) May be repeated.
312-512 Baroque Ensemble (1,1) May be repeated.
315-515 Chamber Music Ensemble (1,1) May be repeated. Maximum 12 hours.
316-516 Steel Band (1,1) May be repeated.
320-520 UT Singers (1,1) May be repeated. Maximum 4 hours.
330-530 Chamber Singers (1,1) May be repeated.
334-534 Saxophone Choir (1,1) May be repeated.
340-540 Opera Theatre (1,1) May be repeated.
350-550 Concert Band (1,1) May be repeated.
352-552 Symphonic Band (1,1) May be repeated.
353-553 Wind Ensemble (1,1) May be repeated.
354-554 Pep Band (1,1) May be repeated.
359-559 Marching Band (1,1) May be repeated.
370-570 Symphony Orchestra (1,1) May be repeated.
380-580 Concert Choir (1,1) May be repeated.
383-583 Men’s Chorale (1,1) May be repeated.
389-589 Women’s Chorale (1,1) May be repeated.
399-599 Accompanying (1,1) May be repeated.

MUSIC GENERAL (698)
140 Fundamentals of Performance (1-2) Private instrumental or vocal study, one or two half lessons per week. 1 hour credit - elective, secondary or minor; two hours credit - major.) This course is designed to prepare students for enrollment in Music Performance 103-195. Cannot be used to satisfy applied music requirements at the junior high or middle school level. Prerequisite: Admission to Teacher Education Program and consent of instructor. Letter grade only.
141 String Orchestra Pedagogy and Rehearsal Techniques (2) Function, organization, and direction of a school marching band. Letter grade only.
410 Senior Seminar (0) Issues related to the music teaching profession. Prerequisite: Admission to Student Teaching. Corequisite: Music Education 410.
420 Music Methods for the Junior High School and Middle School (3) Methods and materials for teaching vocal, instrumental, and general music at the junior high school or middle school level. Prerequisite: Admission to Teacher Education Program and consent of instructor. Letter grade only.
430 Music Methods for High School (3) Methods and materials for vocal and instrumental music at the high school level, including charting for the marching band. Prerequisite: Admission to Teacher Education Program and consent of instructor. Letter grade only.
440 Marching Band Techniques (2) Functions, organization, and direction of a school marching band. Letter grade only.
441 String Orchestra Pedagogy and Rehearsal Techniques (2) Function, organization, and direction of a school orchestra program. Letter grade only.
482 Internship II: Grades K-12 (3-6) Demonstration of professional competence in planning, instruction and classroom management. Internship in classrooms in local public schools. Prerequisite: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp
490 Special Topics in Music Education (1-3) Prerequisite: Consent of instructor. May be repeated. Maximum 9 hours. Letter grade only. E

MUSIC HISTORY (709)
110 Introduction to Music in Western Culture (3) Developing listening skills and understanding of Western music from the ancient world through the 20th Century. For non-music majors. Writing-emphasis course. E
115 Music in the United States (3) Explores musical traditions of the United States. For non-music majors. Writing-emphasis course.
120 History of Rock (3) Study and appreciation of rock music, its origins in blues and rock and roll, its development and cultural dimensions to the present. Writing-emphasis course. F, Sp
129 Introduction to World Musics (3) Survey of music of representative cultures from Africa, Asia, Oceania, and the Americas with a focus on music as sound and as part of the human condition. Also includes an emphasis on applying basic music terminology to listening skills.
130 Introduction to African-American Music (3) History of African music, blues, gospel music, and jazz with emphasis on Black artists and their contributions. (Same as African and African-American Studies 310.)
133 Women in Music (3,3) Women in music from the Middle Ages to present as composers, performers, educators, and patrons. (Same as Women’s Studies 330.)
340-341 Contemporary Trends in American Church Music I, II (2.2) Survey of sacred music in contemporary style, emphasizing analysis and evaluation criteria. Must be taken in sequence. 340 includes theory and keyboard harmony appropriate to the style. 341 covers composition and arranging within the style. Prerequisite: Music Theory 210-220.
350 History of Jazz (3) Origin, development, and styles of jazz music and its exponents. Cultivation of special listening techniques. Writing-emphasis course. (Same as African and African-American Studies 350.) F, Sp
380 Music in World Cultures (3) Examines music from an ethnomusicological perspective focusing on musical performance and the interrelationships of music, culture, and daily life. The course surveys music from a variety of cultures through a series of case studies. Prerequisite: 210-220, or permission of instructor.
400 Music History Survey (3) History of music with emphasis on genres, style changes, and cultural forces. Western European tradition from 400 to 1900. Recommended as a review course for graduate students. Prerequisite: 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 opera 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.
450 Composer Seminar (3) Life and works of a single composer. Subjects vary.
1460 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.
493 Independent Study (1-15) Prerequisite: 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 (3) 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 woodwind 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, performance styles, 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 knowledge of the function of relevant techniques 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. Training and function of the ear in music. Transcription of solos from recordings and preparation of analysis. 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 fundamental melody—harmony improvisation for right hand. Must be taken in sequence.

140 Introduction to Styles in Jazz Drumming (2) Examination of major composers and performers 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 notation, 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 rehearsal techniques for 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. Prereq: successful completion of music audition and theory placement exam. Intended for music majors and minors.

210-220 Class Piano III, IV (1,1) Continuation 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.

260 Early Keyboard Instruments (1) An introduction to the harpsichord, clavichord, and baroque organ. Emphasis on appropriate playing techniques. Brief survey of instrument types, repertoire, and performance practice issues. Prereq: Ability to perform keyboard literature at the 180, 185, or 190 level.

310-320 Church Service Playing I, II (1,1)Continuation of 240. Prereq: 240.

330 Sight Reading at the Keyboard (1) Prereq: Consent of instructor.

340-350 Piano Pedagogy I, II (3,3) Pedagogical methods and materials related to the development of principles of learning; dictatorial teaching experience. Must be taken in sequence.

360-370 Piano Pedagogy III, IV (3,3) Intermediate to advanced methods and materials related to the development of principles of learning; dictatorial teaching experience. Must be taken in sequence.

420-430 Piano Literature I, II, (2,3) 420—from 1750 to mid-19th century; 430—mid-19th century to present.

460-470 The Organ and Its Literature I, II (3,3) Development of the organ and organ literature from the Middle Ages to the 180 level; emphasis on problems of style and interpretation. Study of the harpsichord, clavichord, and baroque organ. Emphasis on appropriate playing techniques. Brief survey of instrument types, repertoire, and performance practice issues. Prereq: 240 or Coreq: Music History 220 and consent of instructor.

480 Teaching Class Piano (3) Historical survey and evaluation of teaching materials and methodology for college and adult beginner piano classes, with collaborative teaching experience. Prereq: Consent of instructor.

485 Suzuki Piano Method I (2) Study of the psychology, materials of music including ear training and assessment of teaching materials and methodology for college and/or adult beginning piano classes, with collateral teaching experience. Prereq: Consent of instructor.

MUSIC TECHNOLOGY (717)

290 Sound Recording Techniques (3) Theory and applications of tape recording’s sound reproduction and reinforcement systems. Topics include room acoustics, audio measurements, microphones, studio digital and real-time processing, noise reduction, mixing, editing, monitors, system wiring, and maintenance.

340 Introduction to Computer Music Transcription (3) Exercise in notation, playback and publishing incorporating elements of word processing, graphic design, sequencing and page layout. Study of Music Instrument Digital Interface protocol as it applies to computer music work station design. 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.

MUSIC THEORY (714)

100 Fundamentals of Music (3) Theory and practice of basic elements of music. Writing-emphasis course. F, S

110-120 Theory I, II, III, Materials of music including notation, transcription, tonality, chord symbols, chord scales, chord progressions, melodic and harmonic improvisation. Prereq: successful completion of music audition and theory placement exam; 110 - must be taken concurrently with 110. A, B, C, NC grading.


140 Ear Training II (1) Development of proficiency in identifying and notating melodic, harmonic and rhythmic models. Includes computer lab. Should be taken concurrently with 120.

210-220 Theory III, IV, Materials of music including altered chords and analytical methods. Emphasis on literature of the Classic, Romantic, and Contemporary periods. Exercises in analysis, composition, and improvisation of music. Must be taken in sequence. Prereq: 210 — Music Theory 120, grade C or higher, or consent of instructor; 220 — Music Theory 210, grade C or higher, or consent of instructor.


310 and Analysis (3) Study and practice in analysis of forms of music from smallest structural units to large compound forms. Prereq. Music Theory 210 and 240, grade C or higher.

320 Instrumentation (2) Basic techniques in scoring for voice, brass, woodwind and string choirs and percussion. To be taken together with jazz composition majors. Prereq: Music Theory 210 and 230, grade C or higher.

400 Survey of Music Theory (3) Emphasis on harmonic practice of Baroque, Classic, and Romantic periods. Exercises in writing and analysis. 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: 240 or the equivalent. Required of entering graduate students with a deficiency in ear-training. Satisfactory/No credit grading only.
110 Class Voice I (1) Development of basic vocal skills. May be repeated for credit. Maximum 2 hours.

230 Acting for Singers (1) Advanced work on song presentation and interpretation; scene study and characterization. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

240-250 Diction I, II (2.2) Sounds by phonetic symbols. Opera and art songs used for examples. Performance practice.

330 Opera Production (1-3) Supervised work on opera productions. May be repeated for credit. Prereq: Consent of instructor. Maximum 12 hours.

410-420 Song Literature I, II (2.2) 410-German songs. 420-French, Italian, Russian, Scandinavian, Czechoslovakian, British, and American art songs. No graduate credit for students in the M.M. concentration in Vocal Performance.

425 Functional Diction for Singers (3) Comprehensive one-semester course in pronunciation and diction; emphasis on English, French, German, Italian and Latin and Spanish; Basic instruction in the International Phonetic Alphabet; development of vocal freedom; children’s diction: overview of diction styles and traditions in each language; survey of diction resources and reference materials. Suitable for Sacred Music and Music Education majors with a concentration in Voice and for graduate students in Choral Conducting. Does not fulfill deficiency requirements for graduate students in Voice or Accompanying.

450-460 Pedagogy I, II (2.1.2) 450-Concepts and applications of nuclear medicine. Emphasis on basic chemistry and physics for nuclear medicine. May be repeated for credit. Prereq: Consent of instructor. Maximum 12 hours.

475 Nuclear Medicine Registry Review (2) Preparatory examination for the Nuclear Registry Examination. May be repeated for credit. Prereq: Consent of instructor. Maximum 12 hours.

511 Foundations of Professional Nursing Practice (5) Emphasis on patient centered communication, therapeutic interventions, and critical thinking as key elements in the provision of safe and effective patient care. Clinical laboratory experiences provide opportunity for the application of these processes in the care of adults in selected healthcare settings. 3 lecture, 2 lab. Prereq: 201; Coreq: 319, 333, 341, F

514 Wellness and Lifestyle (3) Models of wellness and holistic health within the framework of modern medicine, eastern philosophy, and recent discoveries about the interaction of mind and body. Biopsychosocial interactions of lifestyle and genetic risk factors for cardiovascular and malignant diseases, wellness potential, and prevention of disease. Prereq: Consent of instructor. May be facilitated by faculty. Open to undergraduate students in all colleges.

519 Pathophysiology of Health Deviations (4) Application of physiological concepts to health promotion, maintenance, deviations, and restoration. Introduces psychoneuroimmunology. Emphasis on interactions of body systems, and impact of disease processes on the human body. F

333 Health Assessment (3) Theory and laboratory in the systematic assessment of health status including history taking and performance of physical assessment skills. For RNs this course is prerequisite to any clinical course beyond 305 Transitions. 2 lecture, 1 lab. F

341 Health Promotion (3) Introduction to health promotion concepts and nursing interventions for health promotion and disease prevention. F

351 Pharmacology (2) Biochemical and pharmacological concepts and principles of the therapeutics of each human system. Basic concepts of drug action and interactions. Major drug classifications. Prereq: Chem 100-110, and at least 6 semester hours of Anatomy and Physiology. Sp

361 Health Maintenance and Restoration Across the Life Span (5) Focus on health maintenance and restoration in nursing practice with children or adults experiencing commonly occurring acute or chronic illness. 2 lecture, 1 lab, 2 Pr's. Prereq: N511, N519, N333, N341, or RN Status. Coreq: N351.

381 Professional Leadership Issues I (2) Focus on concepts and strategies for management and leadership as a professional nurse. Emphasis on problem identification, individual responsibility, decision making, communication, confrontation, collaboration, conflict resolution, coordination, delegations, supervision, and team nursing. Prereq: N311, N341 or RN status. Sp

382 Health Promotion and Maintenance in Community (4) Focus on nursing care of at risk populations. Design and implement interventions to promote and maintain health. Includes assessment of values, risk factors, environmental factors, health education, and community resources. Prereq: 311, 319, 333, 341, or RN status. Co or Prereq: 351, 361. 2 lecture, 2 lab, F, Sp

403 Health Promotion and Maintenance in Child Bearing Families (5) Nursing practice for promotion, maintenance, and restoration of reproductive health. Emphasis on therapeutic relationships with childbearing families for long term positive impact on health care and lifestyle. 3 lecture, 2 lab. Prereq: All required 300 level courses or RN status. F, Sp

406 Pharmacology II (2) Continuation of 351 with emphasis on nursing responsibilities in the safe and effective use of therapeutic drugs, recognition and reporting of side effects, and critical aspects of patient education. Prereq: 319, 351. F

415 Family/Community Health Nursing (6) Application of the nursing process to individuals, families, groups in the childbearing/rearing stages of development. Clinical laboratory experiences are provided in a variety of hospital and community settings. 3 lectures, 3 lab. Prereq: All 300 level nursing courses. For non-nurse MSN students only. Su

421 Mental Health Maintenance and Restoration (4) Nursing care for persons with mental health needs. Emphasis on use of self as therapeutic agent with individuals, groups and families and developing nursing strategies for mental health maintenance and restoration. Prereq: all required 300 level nursing courses or RN status. 2 lecture, 2 lab. F, Sp
432 Health Promotion, Maintenance, Restoration in the Community (3) Focus on nursing care of at risk individuals, communities, and populations. Assessment of sociocultural values, environmental factors, health education, and community resources. Design of interventions to promote, maintain, and restore health through the use of the epidemiological approach.

451 Professional Leadership Issues II (2) Survey of issues and trends that influence the practice of professional nursing. Prereq: N311, N333, N341, F

452 Professional Leadership Issues III (2) Legal and regulatory processes affecting nursing practice and clarification of personal and professional values. Application of nursing research and development of nursing as a discipline. Impact of issues having an impact on nursing practice. Prereq: All required 300 level nursing courses and N451. Sp

461 Health Restoration Across the Life Span (5) Focus on health restoration in nursing practice to support and care for children or adults and their families with acute, chronic health needs. Emphasis on quality of care, continuity of care, coordination of care and end of life care. Prereq: all required 300 level nursing courses. 3 2ec, 2 3lab, F, Sp

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. Letter consent of instructor.

471 Nursing Research (3) Introduction to research design, and methodologies. Critique of selected research studies for application to evidenced-based nursing practice. Prereq: All required 300 level courses, or consent of instructor. F

480 Nursing Informatics I (3) Provides opportunity for nursing students and/or registered nurses to develop beginning knowledge and skills in computer applications and the field of nursing informatics. Existing and future health information systems will be examined. Emphasis is placed on hands-on acquisition of basic computer competencies. Use of electronic communication, word processing, spreadsheet, database, presentation and computer-assisted-instruction programs. Students will also be exposed to nursing documentation, flowcharting, and authoring software. Lecture, 1 lab. Prereq: Upperdivision, or RN status or consent of instructor.

482 Health Maintenance and Restoration in Community (4) Analysis of health needs of a selected community utilizing the epidemiological process. Emphasis on visiting clients and families across the life span in their own environment. Prereq: All required 300 level nursing courses for RNs, 305, 333, 351 and pre or coreq: 319, 2 2ec, 2 3lab, F, Sp

490 Specialty Preceptorship (4) In-depth practicum to develop knowledge and skill in a selected specialty area under direct guidance of clinical preceptor. Knowledge development in specialty area under guidance of faculty. Prereq: Coreq: N421, N424, N471, N472, N461, N482 or RN Status. 1 3ec, 3lab

493 Independent Study (1-3) Nursing or health-related topic not covered in other nursing courses. Prereq: Senior standing or consent of instructor.

NUTRITION (726)

100 Introductory Nutrition (3) Conceptual: current consumer issues in nutrition; nutritional needs through the lifespan; critical nutrition concerns and issues. A nutrition major who has received credit for NTR 300 may not receive credit for this course. F, Sp

201 Careers in Nutrition (1) Overview of nutrition-related careers. Routes to meeting academic, registration, and experiential requirements. Letter grade only.

300 Fundamentals of Nutrition (3) Nutrition in normal and altered health states during life cycle; nutritional analysis of diets. Prereq: Chemistry 110 or equivalent. Prereq or Coreq: BCBM 230. A nutrition major who has received credit for NTR 100 may not receive credit for this course. Sp

302 Life Span Nutrition (3) Physiological development and psychosocial factors that influence nutrient needs and nutrition behaviors of individuals across the life span. Nutrition implications for special dietary strategies for various age groups. Prereq: 100, BCBM 230 or consent of instructor.

303 Foodservice Systems Management (3) Assessment of managerial, organizational and operational structures in foodservice systems with focus on markets related to dietetics. Human resource policies and strategies applied to foodservice systems management. Sp

310 Physiological Chemistry (4) (Same as Biochemistry 310.)

312 Science of Food (4) Elements of food selection, safety, preparation and evaluation. Chemical and physical properties of food related to functional and nutritional properties. Sensory evaluation concepts and techniques. Effects of processing on food. Prereq: 100, Chemistry 350. Coreq: Micro 210, 3 hours and 1 lab.

313 Vitamins and Minerals (3) Functional properties and interrelationships among vitamins and minerals as they apply to human nutrition. Prereq: 100, BCBM 230, Chemistry 350. Coreq or Prereq: 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 Dietsetics (1) Dietetic registration, licensure; third party payments; dietetic practice: marketing dietetics; internship application preparation, public policy in dietetic practice. Prereq: Senior standing.

412 Food and Nutrition in the Community (3) Influence of health characteristics, geographic, social, economic, educational and cultural factors on food and nutrition programming; relationships of community food and nutrition problems to programs and services for families and communities with particular attention to disease prevention; public policy. Prereq: 302, 415.


450 Special Topics: Nutrition (1-3) Developments, issues and problems in Nutrition; topics variable. Prereq: Junior or Senior standing in NTR or consent of instructor. May be repeated. Maximum 3 credits.

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. Letter grade only.

ORNAMENTAL HORTICULTURE AND LANDSCAPE DESIGN (740)

110 Introduction to Ornamental Horticulture (3) Survey of the history, science, crafts, professions, and businesses of ornamental horticulture. Prereq: Enrollment restricted to: PSLS freshmen and transfer sophomores; open to all non-majors. F

220 Basic Landscape Plants (3) Identification, classification, adaptation, culture and landscape design uses of basic ornamental trees, shrubs, and vines. Prereq: 8 hours biological sciences or consent of instructor. F, 2 hours and 1 lab

230 Interior Plantscaping (3) History and introduction of the interior plantscaping industry. Identification, culture, propagation, and use of plants for the commercial interior plantscaping industry. Management ideas for the interior estimator including light, humidity, growing media, insects, and diseases. Commercial use of containers, plants, water features, artificial plants. Prereq: 110 or consent of instructor. F

231 Interior Plantscaping II (3) Commercial application of design, sales, sales proposals, plantscape management, and basic plantscaping business management of the Interior Plantscaping industry. Prereq or consent of instructor. Sp

280 Fundamentals of Landscape Design (3) History of landscape design as it relates to contemporary applications. Awareness and sensitivity to the landscape; basic principles and design theory with an emphasis on residential landscape planning. Introduction to landform, landscape materials, and planting design. 1 hour and 2 labs. E

326 Public Horticulture (3) In-depth study of the public horticulture industry. Attention given to the diversity of public horticulture institutions, career opportunities, and research. Discussion of current topics and issues. Prereq: 110 or consent of instructor. F

330 Plant Propagation (3) Physiology, methodology, and environmental requirements for propagation. Prereq: 8 hours of biological sciences or consent of instructor. 2 hours and 1 lab. F

350 Basic Landscape Construction (3) Basic materials and techniques used in construction and contracting industries; application of landscape materials, wood, concrete and masonry construction; site drainage, and landscape grading. Prereq: 280. 2 hours and 1 lab.

360 Practicum in Landscape Construction (3) Practical experience in implementation of landscape development projects. Directed lab and field instruction in planting specifications for basic landscape construction including interpreting and implementing landscape design drawings and specifications. Prereq: 350. Two three hour labs. Sp

370 Grounds Maintenance (3) Identification and understanding of maintenance practices including site soil amendments, pest and weed control, and informed use of equipment; maintenance practices. 2 hours and 1 lab. F

380 Supplemental Landscape Design Graphics (3) Refinement of graphic skills and design theory with an emphasis on perspective, sections, isometric projections, and presentations. Lettering, plan graphics, color rendering, and other visual presentation media. Prereq: 280. Two 2 hour labs. F

390 Fall Herbaceous Ornamental Plants (3) Identification, culture, and landscape use of late summer and fall herbaceous ornamental plants including annuals, perennials, herbs, and ornamental grasses. Basic gardening practices and design elements using such herbaceous ornamental plants. Prereq: 110 or consent of instructor. F

391 Spring Herbaceous Ornamental Plants (3) Identification, culture, and landscape use of Spring and early summer herbaceous ornamental plants including annu als, perennials, herbs, bulbs and wildflowers. Basic gardening practices and design elements using such herbaceous ornamental plants. Prereq: 110 or consent of instructor. Sp, A-E

410 Nursery Management and Production (3) Management methods as applied to retail and wholesale nurseries and commercial苗圃. Determination of producing hardy herbaceous, conifers, container and field-grown woody ornamental plants. Prereq: 220, 330, and Plant and Soil Science 210, 2 hours and 1 lab. Sp

421 Native Plants in the Landscape (3) Native plants and plant communities as a basis for landscape design and environmental restoration. Weekly lecture coupled with either an outing or service practicum of invasive exotic plant removal or planting of natives. Study and work sites will primarily be demonstration projects of the UT Environmental Landscape Design Lab. They include local schoolyard habitats, greenways, wetlands, streambanks, and shorelines. Prereq: ON-L 220, Botany 330 or consent of instructor. F

427 Management and Administration of Public Horticulture Institutions (3) Management of resources in nonprofit institutions, support organizations and communities. Theoretical framework and institutional mission: strategic planning and programming; financial accounting and budgeting; development and fund raising; personnel policies; volunteer development; marketing and publicity; legal issues; relationships between staff and governing boards; the use of information technology in management. Prerequisite: Understanding of conservation and preservation roles in community development. Prereq: 326. F

429 Field Study of Public Horticulture Institutions (3) Extended 10-12 day field study of various public horticulture institutions, historic gardens, zoos, conservatories, cemeteries, and nature preserves. Application and travel fee required. Prereq: 326. Spr, mini-term
### Courses of Instruction

#### 430 Greenhouse Floral Crop Production (3)
Principles of greenhouse operation and management for commercial production of floral crops. Greenhouse construction and operation, crop scheduling and cost accounting. Environmental inputs and cultural practices as they affect plant physiological processes and influence plant growth and development. Prereq: Agriculture and Natural Resources 290 or consent of instructor. Sp.

#### 435 Public Garden Operations and Management (3)
An analysis of year-round operations and management of public gardens. Case studies involving time and labor management, development and management, implementation of volunteer programs, information dissemination methods for public outreach, management of grounds and facilities using the University of Tennesseee Institute of Agriculture Gardens as a model. Prereq: 326. Sp.

#### 436 Plant and Garden Photography (2)
Principles and techniques of photography as they relate to plants and gardens. Study of equipment options and field shooting under various weather conditions and in different seasons. Prereq: Senior standing and consent of the instructor. Sp. A

#### 446 Horticultural Therapy (3)
Introduction to the application of horticulture as a therapy for treatment, rehabilitation and/or training of individuals with disabilities. Senior standing and consent of the instructor. F, A

#### 450 Specialty Landscape Construction (3)
Methods of design, materials, and construction techniques for specialized components of the landscape industry. Irrigation systems, outdoor lighting, garden ponds and water features. F

#### 451 Plant Tissue Culture (3)
Same as Botany 451.

#### 460 Professional Practices in Landscape Construction and Management (2)
Professionalism, salesmanship, proposals, bidding, estimating, specifications, and contract management in the landscape services industry. Computer technology applicable to landscape construction and contracting industry. Includes presentations by industry representatives. Prereq: 350 or consent of instructor. 2 hours. Sp

#### 480 Advanced Landscape Design (3)
Comprehensive application of landscape design skills to a variety of project experiences with an emphasis on landscape planning and analysis, planting design, and materials estimating. Prereq: 280, 380. Two 3 hour labs. Sp

#### 485 Computer-Aided Landscape Design (3)
Overview of Computer-Aided Design (CAD) as it relates to landscape design and construction. Emphasis on development of landscape design drawings through utilization of LANDCAD software. Prereq: 280, 380, and Agriculture and Natural Resources 290. F, Sp

#### 494 Professional Horticultural Communications (3)
Communication for public horticulturists through written, oral, and visual media. Emphasis on communication skills, using proper writing techniques and grammar for print, oral, and visual media. Show development, oral presentations, and video use for media, brochure design using desktop publishing, slide presentation and written content. Prereq: 360. S/NC or letter grade.

### Persian (744)

#### 161-162 Elementary Persian I,II (4,4)
(Same as Asian Studies 141-142.)

#### 261-262 Intermediate Persian I,II (4,4)
(Same as Asian Studies 261-262.)

### Philosophy (745)

#### 110 The Human Condition: Values 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, Aristotle, 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 Arts and Sciences Basic Skills Requirement “Mathematics, Computer Science or Logic.”

#### 135 Formal Logic (3)
Introduction to formal deductive systems; propositional and predicate logic. Satisfies Arts and Sciences 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.

#### 290 Social and Political Philosophy (3)
Basic problems and concepts of social and political philosophy.

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

#### 320 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 and Judaic 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.

#### 342 Business Ethics (3)
Ethical problems as they confront both business as a social institution and individuals in business. Writing emphasis course.

#### 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. Writing emphasis course. (Same as Legal Studies 344 and Religious Studies 344.)

#### 345 Bioethics (3)
Ethical issues in health care such as abortion, euthanasia, human experimentation, fairness in health care delivery and the doctor-patient relationship. Writing-emphasis course. (Same as Religious Studies 345.)

#### 346 Environmental Ethics (3)
Issues concerning the nature of the environment and the place of humanity within it.

#### 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.

#### 360 Philosophy of Science (3)
An introduction to major problems in the Philosophy of Science. Specific issues vary, but may include: the nature of causality; the relationship between experiments, theories, and scientific practice; how theories change and how scientific disputes get settled; the role played by social organization in science (e.g. gender and race issues); Basic Logic and philosophy of logic. Prereq: 135 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.)

### Physical Education Activity Program (764)

#### 200 Special Topics (1-2)
Selected topics in various activities not covered in the regular program. When content varies, may be repeated. Maximum 6 hours. S/NC or letter grade.

#### 202 Badminton (1)
Fundamental badminton technique, game strategy, and rules for singles and doubles play.

#### 206 Bowling (1)
Introduction to ball selection, approach, spot bowling, rules, scoring, etiquette, and basic terminology necessary for enjoyable recreational bowling.

#### 211 Golf (1)
Introduction to chipping, putting, full swing, rules, etiquette, and scoring necessary for enjoyable recreational play.
213 Ice Skating (1) Beginning skills and etiquette in ice skating. Satisfactory/No credit grading only.
216 Martial Arts (Special Topics) (2) Special Topics. Selected topics in various forms of martial arts, including but not limited to jujitsu, judo, karate, and tai chi. When Content varies, may be repeated. Maximum 6 hours.
223 Personal Safety and Self Defense (1) Develop and enhance the options of self defense so they may become viable considerations for personal safety. Satisfactory/No Credit grading only.
224 Physical Fitness: Conditioning (1) Program of flexibility, strength, and cardiovascular endurance through exposure to various exercise forms. Satisfactory/No Credit grading only.
225 Physical Fitness: Exercise to Music (1) Total body workout to music with lecture emphasis on basic fitness components of flexibility, strength, and cardiovascular fitness.
226 Exercise and Weight Control (1) Fitness activities and basic fundamentals of nutrition for students interested in losing weight: includes body composition assessment and instruction on achieving a goal weight.
229 Physical Fitness: Jogging (1) General factors on physical fitness with emphasis on the improvement of cardiovascular fitness through jogging.
230 Physical Fitness: Swimming (1) Introductory course outlining basic principles of fitness, evaluation, and workout design in the aquatic environment.
231 Physical Fitness: Walking (1) Course for those wishing to walk as part of a fitness program: includes measurement and interpretation of fitness components, including body composition, cardioretinal fitness, low back function and nutrition.
232 Racquetball I (1) Pass, kill, ceiling shots, and basic serves... Singles, and doubles strategy, necessary for recreational play.
234 Soccer (1) Introduction to individual and team fundamentals, rules, and strategy.
235 Social Dance (2) Popular ballroom dance forms such as the swing (shag), fox trot, cha cha, tango and rumba.
236 Softball (1) Introduction to individual and team fundamentals, rules and strategy.
239 Beginning Swimming (1) Includes skills in the American Red Cross basic swimming course for the non-swimmer.
240 Intermediate Swimming (1) Crawl stroke, elementary back stroke, side stroke, back crawl, breast stroke, entries and turns.
244 Tennis I (2) Introduction to forehand, backhand, serve, volley, rules, scoring and simple strategy.
245 Tennis II (1) Development of accuracy and improved technique. Strategy, and serve; introduction to smash, spin serve, and advanced strategy.
249 Tumbling I (1) Beginning tumbling skills including forward and backward rolls, twisting, balance, agility, and combinations.
251 Volleyball (1) Introduction to individual and team fundamentals, rules, and strategy.
252 Weight Training (1) Introduction to the principles of strength development, and muscle groups through the use of free weights and machines.
254 Yoga and Relaxation (1) Introduction to yoga and various forms of relaxation, with the majority of class time spent learning and refining the postures. Satisfactory/No Credit grading only.
255 Water Safety Instructor (2) Prepares individuals to teach American Red Cross basic swimming and personal safety courses. ARC certification. Prereq: Swim test second day of class.
256 Lifeguarding Training (2) American Red Cross lifeguarding and aquatic management techniques. ARC certification. Prereq: Swim test second day of class.
259 Snow Skiing (1) Development of skills necessary to balance, weight transfer, and control. Learn ski etiquette and “Skier’s Responsibility Code.” Satisfactory/No Credit grading only.
260 Western Dance (1) Popular western dance forms including line dances, western social dances, mixers and couples.
261 Scuba Diving (1) Introduction and developmental SCUBA diving skills as well as the theory, safety skills and practical application of skills to open water SCUBA diving.

PHYSICS (773)

101-102 How Things Work (3,3) For students with majors outside of science. Explores familiar objects of everyday experience and leads to an understanding of the physical principles that makes them work. No prerequisite.
135-136 Introduction to Physics for Physical Science and Mathematics Majors (4,4) A one year course covering calculus based physics. Prerequisites: 200 level and beyond. Alternative to honors physics 137-138 for physics majors. Coreq: Mathematics 141-142. 3 hours lecture, 2 hours lab.
137-138 Honors Fundamentals of Physics for Physics Majors (5,5) For physics and engineering physics majors and qualified students from other majors. Coreq: Mathematics 141-142.
161 Elements of Physics for Architects and Interior Design Students (3) Chosen topics in physics for architecture and interior design students. Course emphasizes material development by logic and lecture demonstrations. Prereq: Intermediate Algebra and one year of geometry.
221-222 Elements of Physics (4,4) Basic physical principles and applications required in premedical, pre-dental, pre-pharmacy and pre-veterinary programs. 221-Mechanics, heat, wave motion, and optics. 222-Electricity and magnetism, modern physics. Must be taken in sequence. 3 hours lecture, 3 hours lab. Prereq: Mathematics 130 or Calculus.
231 Fundamentals of Physics: Electricity and Magnetism (3) For engineers and Arts and Sciences majors in mathematics and the physical sciences. Required of all engineering students. Prereq: Engineering Fundamentals 102; Coreq: Mathematics 142. 2 hours lecture, 3 hours lab/recitation.
240 Fundamentals of Physics: Modern Physics (3) Special relativity, fundamental concepts of modern physics and their applications to atomic, nuclear, particle and condensed matter physics. Prereq 136 or 138 or consent of instructor.
311-312 Mechanics (3,3) 311—Kinematics and dynamics of particle systems. 312—Many body systems, rigid bodies, Lagrangian and Hamiltonian mechanics. Strong emphasis on programming and numerical methods. Must be taken in sequence. Prereq: For 311: 136 or 138 or 231; Computer Science 102. Coreq: For 312: Math 241.
321 Thermal Physics (3) Concepts of temperature and heat; laws of thermodynamics; elementary statistical mechanics; applications to physical and chemical problems. Prereq. 311, or 136, or 138, or 231.
341 Introduction to Nuclear Physics (3) Introductory theoretical nuclear physics with emphasis on applied aspects. Primarily for Nuclear Engineering majors. Prereq: 240 or 232.
342 Structure of Matter (3) Physics of molecules and condensed matter. 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. 362-Advanced instrumentation techniques applied to the study of electronic circuits as dynamic physical systems, feedback and stability, noise, discrete sampling. Fourier analysis and synthesis, nonlinear circuit dynamics. Prereq: 316 or 318, or 232, 6 weeks.
401 A Survey of Physics (3) A survey of physics from earliest times to the present, emphasizing the unity of philosophical and mathematical principles. Classical theories and experiments as well as the role of modern physics in modern society and the practice of physics from a value-oriented perspective. Written reports on important original papers, thought-provoking problems combining different fields of classical physics, and a final oral and written report on some independent study. Prereq: Senior standing in Physics or consent of instructor.
421 Modern Optics (4) Transmission of light in uniform, isotropic media, reflection and transmission at interfaces; mathematics of wave motion and interference effects. Rudiments of Fourier optics and holography. Prereq: 431, or 136 or 138 or 232 and consent of instructor . 3 hours lecture, 3 hours lab.
431-432 Electricity and Magnetism (3,3) Electrostatics, magnetostatics, coupled electric and magnetic fields; Maxwell’s Equations, electromagnetism and relativity; radiation. Prereq: 138 or 136 or 232.
441-442 Contemporary Physics (3,3) An introduction to the major fields of contemporary physics ranging from Cosmology to High Energy. In addition to a broad discussion of the fundamental concepts for each field, the essential elements of Electricity, Magnetism and Quantum Mechanics will be covered. Must be taken in sequence. Prereq: 240 or equivalent, 311-312, 321.
453-454 Team Research Project (3,3) Student teams will carry out major experimental or computational projects. The team in consultation with the instructor will choose the topic and develop a plan for the project. Each team will conduct several oral presentations in an independent manner, carry out the project, and produce a final written report. Must be taken in sequence. Prereq: 361, 461.
461-462 Modern Physics Laboratory (3,3) 461-Introduction to fundamental and modern techniques in experimental physics, and to the theory and practice 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 experiments and experimental techniques in modern physics; experimental team work. Thorugh quantum mechanics and simple experiments, fundamental concepts and skills will be emphasized. Prerequisite: 461. 6 hours lab per week.
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. Consent of department is required. Maximum 6 hours.

PLANT SCIENCES AND LANDSCAPE SYSTEMS (790)

471 Statistics for Biological Research (3) Notation, descriptive statistics, probability, distributions, confidence intervals, estimation, hypothesis tests, analysis of variance, mean separation procedures, linear regression and correlation. Prereq: Math 125 or equivalent. 3 hours and 1 rec. F, Sp
490 Seminar (1) Current topics in Horticulture, Crop Sciences, and Landscape Design. Prereq: Senior standing. F, Sp
492 Internship in Horticultural and Plant Sciences (1-3) Supervised work experience with an experientially- approved employer with the ornamental horticulture, turfgrass, production horticulture, or field crop science industry. May be repeated. Maximum of 6 credits. E
493 Problems in Horticultural and Plant Sciences (1-3) Supervised individual problems relating to the plant sciences or landscape design. May be repeated. Maximum of 6 credits. E

POLITICAL SCIENCE (801)

101 United States Government and Politics (3) Introduction to fundamental concepts and processes of American National Politics including the Constitution, voting, the Presidency, the Congress and the courts.

102 Introduction to Political Science (3) Introduction to politics and political systems.

107 Honors: United States Government and Politics (3) Analysis and application of American political systems for students with superior ability. Admission by permission of department for students with at least a B average; entering freshmen accepted on basis of strong placement scores and high school record.

300 Introduction to Political Philosophy (3) An introduction to the concepts, enduring questions and significant thinkers associated with political philosophy with specific attention to differing conceptions of human nature, politics, the state, civic obligation and rights, freedom, justice and democracy.

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 politics and government focusing on television, movies, music, drama, art and sports. Writing-emphasis course. (Same as American Studies 312 and Cinema Studies 312.)

315 Tennessee Government and Politics (3) Major elements in Tennessee government and politics.

320 State Government and Politics (3) Setting, institutions, and processes of government in the fifty states, generalizations and comparisons, with emphasis on federalism and intergovernmental relations.


330 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. (Same as Legal Studies 330.)

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 countries. 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 peacekeeping, war, diplomacy, the balance of power, international law and international organization.) Writing-emphasis course.

366 United States Foreign Policy Process (3) Processes whereby United States foreign policies are made and implemented, focusing on interaction within federal bureaucracy and roles of the President, Congress, the press, and public opinion.

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.

401 Political Analysis (3) Nature, character, and functions of research design, data collection, and statistical techniques used in the study of politics.

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, federal sources of regulatory authority, and constitutional protection of political and economic rights. (Same as Legal Studies 430.)

431 United States Constitutional Law: Civil Rights and Liberties (3) Current issues in civil rights and liberties including: first amendment freedoms, equal protection, privacy and the rights of the accused. (Same as Legal Studies 431.)

435 Criminal Law and Procedure (3) An overview of the criminal justice field with emphasis on constitutional questions and public policy issues.

440 Public Management and Human Resources (3) How to mobilize and manage technical and human resources in pursuit of public sector organization goals.

441 Public Budgeting (3) The process, participants, and implications of budgetary decision-making. Emphasis on federal government budgeting. Includes an overview of budget reform measures and their effectiveness.

442 Administrative Law (3) Legal dimensions of administrative power and procedures, and constitutional controls over administrators. (Same as Legal Studies 442.)

451 Ethnic Conflict in Foreign Countries (3) Examines political and violent conflict among ethnic and national groups and the challenges these conflicts pose for democratic and democratizing states.

452 Black African Politics (3) Recent evolution and current political environment of Black African nation. Writing emphasis course. (Same as African and African-American Studies 452.)

454 Government and Politics of China and Japan (3) Political setting, structure and political processes in China and Japan. Writing emphasis course.

456 Latin American Government and Politics (3) Introduction to the political development of Latin America with an emphasis on contemporary politics. Writing emphasis course. (Same as Latin American Studies 456.)

459 Government and Politics of Russia and Eastern Europe (3) System transformation, political processes and governmental structure in Russia and Eastern European countries. 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. (Same as Legal Studies 470.)

471 International Political Economy (3) Economic relations between countries: theoretical and case studies of efforts to construct multilateral international institutions. Topics include economic growth, international trade and investment, development and global equity. Writing emphasis course.

472 Normative Issues in International Relations (3) An examination of such normative issues as states as human rights, environmental degradation and distributive justice. Writing emphasis course.

475 Ancient and Medieval Political Thought (3) Major western political thinkers from Socrates to Marsili of Padua. (Same as Medieval Studies 475.)

476 Modern Political Thought (3) Major western political thinkers from Machiavelli to Marx.

487-488 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. May not be counted toward requirements for the Political Science major. S/NC only.

PORTUGUESE (811)

111-112 Elementary Portuguese (3,3) Introduction to Portuguese. Must be taken in sequence. Language Laboratory required. F, Sp

199 Portuguese Language and World Business (3) The course will examine the importance of foreign trade at the local, state, and national levels. An interdisciplinary team of faculty from the Colleges of Business and Arts and Sciences will provide an overview of the value of language study and international cultural awareness in world business. Restricted to students majoring in the Language and World Business majors. Concentration See the Director for further information. F

211-212 Intermediate Portuguese (3,3) Stress reading, writing, listening, and speaking of Portuguese to prepare for upper division courses in the language. Must be taken in sequence. Language Laboratory required. F, Sp

301-302 Literature, Culture and Civilization of the Portuguese-Speaking World (3,3) A course for students who have completed the intermediate sequence of Portuguese and wish to enhance their knowledge of language and culture through the medium of literature. Taught in Portuguese. Prereq: 212, 400, or the equivalent.

309 Intermediate Conversation and Composition (3) Designed to improve proficiency in oral and written communication in Portuguese. Prereq: 212, 400, or the equivalent.

315-316 Aspects of Lusó-Brazilian Literature (3,3) Lusó-Brazilian literature through literary history and history of literature. Prereq: At least one course at the 300 level or the equivalent. (Same as Latin American Studies 315-316.)

400 Portuguese for Speakers of Another Romance Language (3) Accelerated class for beginning students of Portuguese with a strong background in another Romance language. Introduction to grammar, reading and culture of Portugal and Brazilian Portuguese. Prereq: 300 level in another Romance language or equivalent.

409 Advanced Conversation & Composition (3) Informal and structured conversation on contemporary topics (business, politics, economics, religion, an culture) and formal writing practice at an advanced level. Prereq: 309 or the equivalent.

431-432 Topics in the Literature & Language of the Portuguese-speaking World (3,3) Outstanding works of literature and culture from the countries where Portuguese is spoken. Topics may vary. May be repeated. Maximum 12 hours. Prereq: At least one course at the 300 level or the equivalent. (Same as Latin American Studies 431-432.)

490 Internship (1-15) Career-related experiences in the United States or abroad with permission of the Language and World Business Director. For Language and World Business majors only. S/NC only.

491 Foreign Study (1-15)

493 Independent Study (1-15)

PSYCHOLOGY (830)

110 General Psychology (3) Introduction to primary approaches to the study of human behavior and experience. E

117 Honors General Psychology (3) Open to University Honors Students and to students with ACT’s of 29 or higher (or SAT equivalent). Prereq: Consent of Instructor.

439 Psychological Measurement (3) Measurement, statistical estimation and decision making in psychological research and practice. Prereq: 200 or consent of instructor. F

220 Behavior and Experience: Humanistic Psychology (3) Behavioral and phenomenological analysis of individuals and their development in natural environments. Prereq: 110. E.

295 Research Analysis in Psychology (3) An introduction to the research methods and data analysis used in psychological research. This course should be taken as soon as possible after declaring psychology a major. Prerequisite: Psychology 110.

300 Child Psychology (3) The normal child from conception through infancy, childhood, and adolescence. Physiological, cognitive, social, and emotional development. Prereq: 110. E.

310 Learning and Thinking (3) Survey of theories and findings of research concerning both humans and nonhumans. Prereq: 110. F, Sp.


347 Honors Seminar (1) Classic works in psychology; professional ethics; ethical issues in psychology; presentations of faculty scholarship and honors students' projects. Meets weekly (May be repeated (maximum 8 hours). Prereq: Consent of instructor.

360 Social Psychology (3) Theories, methods, and findings of research concerning individual behavior in a social context. Prereq: 110. E.

367 Psychology Honors Project (3) Independent studies course which leads to the Honors thesis. Students must have plans of study approved by their mentor prior to enrollment. May be repeated (maximum 15 hours). Prereq: Consent of instructor.

370 Ethology and Sociobiology (3) (Same as Ecology and Evolutionary Biology 370). Sp.

382 Contemporary Topics in Psychology (3) Current issue or problem, such as architectural psychology, impact of technology, artificial intelligence, or stereotypes. Different topic each semester. Prereq: 110 and upper division standing (30 or more semester hours). Maximum of 6 hours may be applied toward major. May be repeated. E.

385 Statistics in Psychology (3) Descriptive statistics; logic of hypothesis-testing and statistical inference. Basic parametric and nonparametric tests. Not open to students with credit in Math 115 or Statistics 201. E.

395 Methods of Research in Psychology (3) Fundamentals of research design, conduct, and interpretation of research, including systematic observation, experiments, quasi-experiments, and program-evaluations. Focus on both laboratory and natural settings. Prereq: 110 and 385 or Math 115 or Statistics 201; and Junior standing (60 semester hours). F, Sp.

399 Supervised Research and Field Work (1-3) Field experience in community-based research and service settings. Prereq: Consent of instructor. Note: Any combination of 6 hours of 399, 489, 491, 492, 493 may be used in major. An additional 6 hours may be used as electives. May be repeated.

400 Cognitive Psychology: Language and Symbolic Processes (3) Psychological knowing, explaining, and understanding. Directed and associative thinking, research and communication and evaluation of major public relations projects.

401 Sensory Processes and Perception (3) Physiological and psychological theories of perception. Emphasis on audition and vision. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. Psych 385 or Math 115 or Statistics 201 or Graduates standing.

415 Psychology of Religion (3) History of the psychology of religion with an examination of various philosophical and empirical orientations. Exploration of the psychological function of religion for individuals and society. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. (Same as Religious Studies 415.)

420 History and Systems of Psychology (3) History of psychological thought. Classical approaches and recent developments in psychology. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor or Graduate standing. F, Sp.

424 Psychology and the Law (3) Psychological aspects of legal systems. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor or Graduate standing.

430 Health Psychology (3) Psychological factors related to health and illness, including stress, personality, and environment. Applications of psychological treatments to physical illness. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor.

434 Psychology of Gender (3) Biological, psychological, and social factors in gender. Importance of gender roles in human life. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. (Same as Women’s Studies 434.)

440 Organizational Psychology (3) Social-psychological analysis of organizations, emphasizing role-theory and systems theory. Prereq: 110 and 360 and Junior standing (60 semester hours) or consent of instructor. (Same as Management 440.)

445 Measurement and Testing (3) Theory of test construction and psychometric measurement. Statistical methods and measures of existing tests. Prereq: 110, Psych 385 or Math 115 or Statistics 201 and Junior standing (60 semester hours) or consent of instructor.


450 Comparative Animal Behavior (3) (Same as Ecology and Evolutionary Biology 450.) F.

459 Comparative Animal Behavior Laboratory (3) Coreq: 450. (Same as Ecology and Evolutionary Biology 459.) F.

461 Physiological Psychology (3) Nervous system and physiological correlates of behavior. Biological basis of emotion, learning, memory and stress. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. One of the following three sequences: Biology 101, 102; Biology 120 and 140; Anthropology 110 and 210, F.

467 Psychology Honors Thesis (3) Independent study for writing and oral defense of Honors thesis. S/N/C only. Prereq: consent of instructor.

470 Theories of Personality (3) Major theories of human personality and their development. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. F, Sp.

475 Adolescent Development (3) Theoretical perspectives and empirical research findings pertinent to adolescent development. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. F, Sp.

480 Theories of Learning (3) Classical and current approaches to learning and cognition. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. F, Sp.

482 Topics in Psychology (3) Intensive analysis of special topics, such as African-American Psychology or evaluation of programs in the community. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. No more than 6 hours of Psych 382 and Psych 482 may count towards the major. An additional 6 hours of Psych 382 and 482 may count as electives. May be repeated.

489 Supervised Research (1-9) Prereq: Junior standing (60 semester hours) and consent of instructor. Note: Any combination of 6 hours of 399, 489, 491, 492, or 493 may be used in this major. An additional 6 hours may be used as electives. May be repeated.

491 Foreign Study (1-15) Prereq: Junior standing (60 semester hours) and consent of instructor. Note: Any combination of 6 hours of 399, 489, 491, 492, or 493 may be used in this major. An additional 6 hours may be used as electives. May be repeated.

492 Off-Campus Study (1-15) Prereq: Junior standing (60 semester hours) and consent of instructor. Maximum 12 hours in 399, 489, 491, 492, and 493 may be applied toward major. Any combination of 6 hours of 399, 489, 491, 492, or 493 may be used in this major. An additional 6 hours may be used as electives. May be repeated.

493 Independent Study (1-15) Prereq: Junior standing (60 semester hours) and consent of instructor. Note: Any combination of 6 hours of 399, 489, 491, 492, or 493 may be used in this major. An additional 6 hours may be used as electives. May be repeated.

496 Senior Seminar: Great Ideas in Psychology (3) Key ideas that have shaped conceptions of humanism. Exploration of historical development, scientific evolution, and larger social context. Prereq: Senior standing (90 semester hours). 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.

305 Disease Epidemiology, Prevention and Control (3) Foundations of epidemiology applied to infectious, acute, and chronic diseases. Emphasis on the applications of public health prevention and control initiatives throughout the disease cycle. Prereq: 110 and 240. 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 occupational endeavors and/or daily living activities. Includes: Drinking water quality (chemical, physical and biological), waste management (liquid, solid and hazardous), vector control, safe food handling, and sanitation. Prereq: Junior standing (60 semester hours) and consent of instructor. (Same as Women’s Studies 434.)

493 Directed Independent Study (1-3) Individual study of selected issues. Prereq: Consent of instructor. May be repeated. Maximum 6 hours. E.

PUBLIC RELATIONS (841)

270 Public Relations Principles (3) Theories and principles of public relations. Overview of public relations in management of business, government, institutions and organizations. Brief case studies and public relations projects.

320 Public Relations Communications (3) Mechanics of effective writing for various media to achieve organizational goals. Overview of governing communication and persuasion theories. Focus on implementation of research-based, planned and managed techniques in a lab setting. Prereq: 270 or ADV 250, and Journalism 200, or consent of instructor.

370 Public Relations Cases (3) Oral and written analysis of current and classic case studies in public relations. Ethics, professional organizations, publications, research and ethics of public relations. Methods of communication and persuasion. Prereq: 270.

412 Opinion Writing (3) (Same as Journalism 412.)

416 Issues in Public Relations (3) Topics vary. May be repeated. Maximum credit 6 hours. Prereq: Consent of instructor.

470 Public Relations Campaigns (3) Research, planning and communication and evaluation of major public relations campaigns. Oral and written presentation of a public relations project from inception to completion. Extensive out-of-class work. Prereq: 320 and 370 or consent of instructor.
RECREATION AND TOURISM MANAGEMENT (854)

119 Introduction to the Service Industry (3) (Same as HRA and RCS 119.)

201 Recreation and Tourism Foundations and Leadership (4) Introduction to the field of leisure, recreation, and tourism focusing on understanding concepts, philosophies, and professional issues in the leisure service industry. Theories and practices of recreation leadership. F, Sp

290 Practicum in Recreation and Tourism Management (2-3) Supervised practice in approved agencies offering programs in recreation and tourism. Each hour of credit requires 40 clock hours of work. Only for majors only. Prereq: Permission of instructor. S/N/C only. E

310 Development and Evaluation of Recreation and Tourism Programs (3) Essential elements and principles in the administration, marketing, and evaluation of various types of recreation and tourism programs. Emphasis on development of program objectives. Practical and comprehensive program designs and evaluation for population and facility within student’s area of interest. Prereq: RTM 110, Junior standing, GPA required for admission to major. A-F. Sp

311 Developing the Service Workforce (3) (Same as HRA 311 and RCS 311.)

320 Therapeutic Recreation and Special Populations (3) Principles, concepts, historical development of recreation, therapeutic recreation, and leisure services to special populations. Explanation of legislation, attitudes, barriers to participants, mainstreaming, advocacy, as related to leisure fulfillment. Prereq: Consent of instructor. F

323 Diversity in the Service Marketplace (3) (Same as HRA 323 and RCS 323.)

325 Therapeutic Recreation and Lifestyle Planning (3) Emphasis on how therapeutic recreation specialists can use the applicable principles of public relations as a treatment modality. Importance and role of recreation/leisure participation (humor, stress-management, self-responsibility, fitness) in the planning and delivery of therapeutic recreation service for individuals with disabilities. Prereq: consent of instructor. F

376 Strategies for Growth (3) (Same as RCS 376 and HRA 376.)

390 Practicum in Recreation and Tourism Management (2-3) Supervised practice in approved agencies offering career opportunities in recreation and tourism. Each hour of credit requires 40 clock hours of work. Only for majors in Recreation and Tourism Management. Prereq: RTM 290 and permission of instructor. S/N/C Only. E

410 Management Concepts of Recreation, Tourism, and Sport Programs (3) Principles for operationalizing recreation, tourism, and sport related programs. Units address utilizing research as a management tool, assessing program cost, facility utilization and evaluation, and contemporary diversity concepts. Prereq: RTM 110, 310 or consent of instructor. A-F. F

415 Development and Maintenance of Recreation, Tourism, and Athletic Facilities (3) Principles of designing, planning, equipping, operating and maintaining various facilities. Elements of risk management and safety are incorporated into the design process. Prereq: RTM 310, SM 350, or consent of instructor. A-F. F

420 Principles of Therapeutic Recreation (3) Principles and practices in therapeutic recreation, including activity analysis, activity and program selection, individual and program assessment, treatment plans, documentation, and professional issues. Prereq: 320 or consent of instructor. F

425 Therapeutic Recreation Programming (3) Principles and practices of therapeutic recreation programming for individuals with various, and multiple disabilities. Focuses on the social, interpersonal, and behavioral aspects of working with individuals in diverse therapeutic recreation environments. Includes lab. Prereq: 320 and/or consent of instructor. Sp

430 Organization and Administration of Leisure and Tourism Services (3) Principles of administration applied to provision of leisure services offered by public, private and/or commercial enterprises. Organizational structures, personnel management, evaluation, legal authority, introduction to budgeting and fiscal procedures. Prereq: 310 or consent of instructor. F, Su

440 Dimensions of Commercial Recreation and Tourism Enterprises (3) Organizational structures, delivery systems, financing private enterprises and operating selected facilities. Special attention is given to market performance and economic impact. Prereq: RTM 110, Junior Standing or consent of instructor. A-F. SP

450 Special Topics in Leisure Education and Tourism (1-6) Development of special topics in Recreation/Therapeutic Recreation and Tourism. A-F. May be repeated.

470 Tourism and Leisure Industries (3) An examination of the symbiotic relationship between tourism and various sectors of the leisure industry. Use of resources, the natural and developed, and the economic impacts of these ventures. Sociocultural impacts upon the venue and how the venue impacts the local population. Sp

480 Internship in Recreation and Tourism Management (1-12) Practical experience in a setting appropriate to a specific area of interest in the field of tourism management. Emphasis on supervision, and administrative procedures. Prereq: RTM 290, all 300 level RTM courses, Senior Standing, GPA required for major. S/N/C. E

493 Directed Independent Studies in Recreation and Tourism Management (1-3) May be repeated.

RELIGIOUS STUDIES (863)

101 World Religions in History (3) Introduction to religion in culture and society, including examination of religious traditions from China, India, and the Mediterranean world. Writing-emphasis course.

102 The Comparison of World Religions (3) Introduction to religion in culture and society, focusing on cross-cultural interpretation and the treatment of common problems and themes within religious traditions. Writing-emphasis course.

232 Varieties of Religious Community (3) How different forms of religious communities (cults, tribes, sects, monastic orders, denominations, familial, etc.) have sought to reject, reinforce, transform, ignore, or dominate their culture and society. (Same as Sociology 232.)

300 Ways of Understanding Religion (3) Sources and methods used in the study of religion and religious analysis of approaches to the study of religion. Writing-emphasis course.

301 Religious Myth, Symbols, and Rituals (3) Distinctive religious systems, the origins and characteristics of religious symbols, and religious rituals. Writing-emphasis course.

302 Anthropology of Religion (3) Religions of selected non-literate peoples. Role of religion in their social and cultural systems. (Same as Anthropology 302.)

350 Voice to Sign Interpretation (3) Interpreting from English to sign language in a variety of physical settings (one-to-one, classroom, assemblies) for students of all ages with varying communication styles; adjusting interpretation to accommodate different student needs. Cross-cultural communication issues interpreting in a manner appropriate to the context; techniques for reducing visual fatigue and overload.

355 Sign to Voice Interpretation (3) Interpreting from sign language to English in a variety of physical settings (one-to-one, classroom, assemblies) for students of all ages with varying communication styles; selecting appropriate to the context. Attention is also given to cross-cultural communication issues.

410 Practicum With Deaf/Hard of Hearing (3) Supervised practicum with hearing impaired students in pre-school, public school, and/or residential school setting. Sp

415 Language Development of Deaf/Hard of Hearing (3) Language problems of hearing impaired contrasted with scope and sequence of normal language development. Formal linguistic systems used to describe language development problems. F


419 Speech Development of Deaf/Hard of Hearing (4) Theories of speech development, approaches in training perception and production of speech, and aural habilitation and speech experiences.

424 Nature of Hearing Impairments (3) Anatomy and physiology of hearing; nature and causes of hearing loss; methods and instrumentation for assessment of hearing level; interpretation of audiologic services to medical and communication professions.

425 Introduction to the Psychology and Education of the Deaf/Hard of Hearing (3) Primarily for those planning to teach the hearing impaired. Research related to psychological, social adjustment, communication methodology, language development and the role of the hearing impaired. Survey of literature. Visits to programs.

431-432 American Sign Language III and IV (3, 3) Sequence stresses fluency of expressive and receptive sign communication skills. Using language in context is emphasized. Grammatical structures of ASL and cultural implications of the deaf community. Must be taken in sequence. Prereq: for 431: 422 or consent of instructor. Prereq: for 432: 431 or consent of instructor.

493 Directed Independent Study (1-3) Tutorial and specialized area. Prereq: Consent of instructor. May be repeated. Maximum 6 hours. S/N/C or letter grade.
RUSSIAN (886)

101-102 Elementary Russian (4,4) Must be taken in sequence.

199 Russian Language and World Business (3) This course will examine the importance of foreign trade at the local, state, and national levels. An interdisciplinary team of faculty from the colleges of Business and Arts and Sciences will provide an overview of the value of language study and international cultural awareness in world business. Restricted to students in the Language and World Business program. See the Director for further information. F

201-202 Intermediate Russian (4,4) Must be taken in sequence.

221 Rebels, Dreamers and Fools: The Outcast in 19th Century Russian Literature (3) Texts in English translation. No foreign language credit. Writing-emphasis course.

222 Heaven or Hell: Utopias and Dystopias in 20th Century Russian Literature (3) Texts in English translation. No foreign language credit. Writing-emphasis course.


311-312 Russian Composition and Conversation (3,3) Practice in writing and speaking; grammar review and vocabulary building. Prereq: Completion of 202.

325 Russian Film (3) A study of Russian cinema from the earliest days to the present: Writing-emphasis course. (Same as Cinema Studies 325.)

371 Martyrs, Mobs, and Madmen in Russian Culture: 988-1863 (3) Explores various aspects of Russian music, art, and literature, emphasizing violent cultural clashes that produced extreme artistic reactions. Texts in English translation. Writing-emphasis course.

372 Eros, Death and Resurrection in Modern Russian Culture (3) Examines the obsession which underlay the intellectual and cultural ferment of 20th Century Russian music, art, and literature. Texts in English translation. Writing-emphasis course.

401-402 Advanced Grammar, Conversation, and Composition (3,3) Prereq: 312 or equivalent.

424 Nabokov's Novels and Stories (3) An intensive course covering several novels and stories, the memoir, and some scientific writings of the prolific Russian-American author. The particular attention given to the author's philosophical views and the contact between his science and his art. In English; readings in Russian for majors. Writing-emphasis course.

430 Selected Topics in Russian Literature (3) When content varies, may be repeated for credit. Writing-emphasis course. Maximum 9 hours.

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.

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

491 Foreign 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 problem/issue. Specific proposal must be made to instructor before registration. May be repeated. Maximum 12 hours. Prereq: Consent of instructor.

443 Sports and Recreational Safety (3) Accident prevention and injury control in sports activities; philosophy of sports safety; human environmental factors and interrelationships in sports injury and control; risk-taking and decision solution strategies; and contributions of sports medicine to safety. 3 hours and 2 labs.

452 Safety Principles and Practices (3) An introduction to the general principles, practices, and procedures in occupational and community safety. A survey of historical and present safety issues, problems, and practices addressing safety of individuals and groups in work-site, school, community, transportation, and industrial settings. Junior/senior standing or consent of instructor. F, Su

460 Fire Risk Management (3) Provides the knowledge and skills necessary to develop, implement, and manage a comprehensive fire safety program. Incorporates basic fire protection principles and implementation concepts and codes, and an exposure to basic five analysis techniques. Prereq: Senior standing or permission of instructor.

SCIENCE EDUCATION (899)

496 Teaching Science Grades 7-12 (3) Methods, materials, recent trends in science and environmental education programs for secondary schools. Prereq: Admission to Teacher Education Program. F

SOCIAL SCIENCE EDUCATION (900)

454 Teaching Strategies and Issues in Social Studies Education (3) Goals, objectives, techniques, materials, and evaluation; directed observation in public schools; preparation of teaching plans and materials; simulated teaching experiences. Prereq: Admission to Teacher Education Program. F

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.


314 Human Behavior and the Social Environment (3) Interrelatedness of biological, social, cultural, environmental and psychological factors in human behavior. Perspectives on the environment over life span with special attention to diversity, impact of racism, sexism, and other sociocultural factors. Integration of knowledge into a socially work practice perspective. Prereq: Initial progression.

316 Culturally Responsive Social Work Practice (3) Social work practice with diverse populations. Variables including race, ethnicity, gender, class and sexual orientations as they relate to generalist social work practice. Students develop self-awareness of their own culture and the culture of others, acquire knowledge and understandings of the impact of oppression on diverse groups. Prereq: Initial progression.

American Studies 343 (3) Generalist practice with emphasis on groups and communities, including treatment theories, techniques, and issues. Prereq: Full progression, Coreq: 416 and 480.


Integrative Seminar (2) Social work content for entry-level professional practice and current issues influencing the profession. Includes development of a portfolio reflecting BSW competencies. Prereq: Full progression. Coreq: 480.


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

Off-Campus Study (1-15) Prereq: Consent of instructor.

Independent Study (1-15) Prereq: Consent of instructor.

SOCIOLGY (915)

Social Problems and Social Change (3) Increasingly acute and serious problems such as alcoholism, violence, crime, inequality, lifestyle preferences, and environmental abuse within the context of social change. Assessment of control strategies.

Honors: Social Problems and Social Change (3) Open to University Honors students and by departmental permission to first year students with 28 or higher ACT or 1200 SAT and other students with a minimum of a 3.0 average.

General Sociology (3) Major concepts and theoretical approaches with emphasis on culture, socialization, social organization, and social stratification.

Honors: General Sociology (3) Open to University Honors students and by departmental permission to first year students with 28 or higher ACT or 1200 SAT and other students with a minimum of a 3.0 average.

Varieties of Religious Community (3) Same as Religious Studies 232.

Sport in American Society (3) Same as Cultural Studies in Education 291.

American Society (3) Institutional organization of contemporary American society with particular attention to major social values. Writing-emphasis course.

Family (3) Theoretical frameworks and methodological approaches; their application in the sociological study of family life.

Interpersonal Communication Processes (3) Same as Speech Communication 320.

Sociological Theory (3) Survey of contemporary issues and problems in sociological theory with an emphasis on their historical development and their importance today. Students are required to form a critical appraisals of the topics addressed. Prereq: C+ or better in Sociology 110 or 120 or consent of instructor.

Sociological Research (3) Selected issues in philosophy of social science, research design, sampling, methods of data collection, and interpretation. Requires written research report. Prereq: C+ or better in Sociology 110 or 120 or consent of instructor. (Same as Legal Studies 331.)

Class Structure (3) Class structure and conflict; causes and consequences of social inequality. Emphasis on the United States. Writing-emphasis course.

Race and Ethnicity (3) Social sources of racial and ethnic cleavages and social, economic, and political consequences in the United States. (Same as African and African-American Studies 343 and American Studies 343.) Writing-emphasis course.

Power and Society (3) Sociological analysis of the formation and application of nation state policies. Examination of who gets what, why, and how. Emphasis on controversies and the control of the state and the relative autonomy of the state.

Collective Behavior and Social Movements (3) Collective phenomena leading to social change. Response to disaster, popular crazes, and social protests and their control through the functions of social control. Emphasis on American cases. (Same as American Studies 345.)

Criminology (3) Systemic inquiry into alternative definitions of crime, statistical distribution of different types of crime, causes and consequences of organized crime, and responses to crime, particularly by the police.


Deviance and Social Control (3) Deviants, their lifestyles, social organization, and social control.

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.

Social Psychology (3) Social psychological analysis of social behavior emphasizing its acquisition, its enactment, and its dynamic nature.

Gender in Society (3) Exploration of gender in sociology using various sociological perspectives with special focus on the relationships between social structures, social roles, and gender identities. (Same as Women’s Studies 375.)

Rural Sociology (3) (Same as Rural Sociology 380.)

Off-Campus Internship (1-6) Supervised experience in the approved site. Analysis of internship experiences with emphasis on writing. Social policies provided through readings and class discussions. Oral and written reports required. Prerequisite: Departmental consent and senior standing in the major.

Special Topics (3) Variable topics. Scope of subject matter determined by students and instructor with consent of department. Prereq: Determined by department. May be repeated. Maximum 6 hours.

Sociology of Sport (3) Social meaning, organization, and process of sport. Prereq: 291 or consent of instructor. (Same as Cultural Studies in Education 405.)

Sociology of Health Care (3) Organization of health care facilities, staff-patient relationships, demographic characteristics, and prevalence of disease.

Aging (3) How roles and statuses change with age in relation to the major social institutions; the impact that the rapid increasing number of older people have on society, the effect of society on older people.

Comparative Poverty and Development (3) A critical examination of patterns of poverty and inequality in developing areas of the world, along with a review of major sociological theories which attempt to explain differences in patterns of development. Writing-emphasis course. (Same as African and African-American Studies 442.)

The Modern World System (3) Critical examination of the global capitalist system as a social system, its coherence, boundaries, regions, member groups, cleavages, and patterns of conflict. Analysis of who gets what, why, and how the global political economy. Writing-emphasis course.

Criminal Justice (3) A critical assessment of the criminal justice apparatus and its components. Brief examination of the police, with most of the emphasis on the problems such as alcoholism, violent crime, inequality, lifestyle preferences, and environmental abuse within the context of social change. Assessment of control strategies.

White-Collar Crime (3) The distinctive nature and dynamics of white-collar crime, victims and costs of white-collar crime, organizations as white-collar offenders, causal theories, and the dynamics of responses to white-collar crime by private and public parties.

Population (3) Demographic factors and social structure; trends in fertility, mortality, population growth, migration, distribution, and composition; population policy.

Urban Ecology (3) The relation of humans to their urban environment with emphasis on conservation and the use of appropriate technology. (Same as Urban Studies 464.)

Social and the Environment (3) Human dimensions of ecosystem management and public policy. An applied focus on how social values are activated within the specific biophysical and social settings. Prereq: 110 or 120 or consent of instructor.

Sociolinguistics (3) (Same as English 471 and Linguistics 471.)

Foreign Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

Off-Campus Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

Independent Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

SPANISH (924)

Elementary Spanish (3,3) Language laboratory required. Must be taken in sequence. Not available to students eligible for Spanish 150. E

Intermediate Spanish Transition (3) This course is designed to prepare students for enrollment in Spanish 211. Prereq: Two years of high school Spanish or a placement score below the level of admittance to Spanish 211. This class will not count toward the College of Arts and Sciences intermediate-level foreign language requirement. Students majoring in elementary Spanish, students who receive credit in this course may not also receive credit for any other 100 level Spanish course and therefore also forfeit the six hours of elementary language credit awarded through placement examination. For elective credit only. F, S

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

Honors: Intermediate Spanish (3,3) Honors course for students of superior ability in Spanish. Incoming freshmen are admitted on the basis of a diagnostic test, high school average and performance on the ACT. Classes normally held to a maximum of 15 students. Students majoring in Spanish must choose the honors option and continue with continuing emphasis upon speaking ability and with an introduction to reading literary selections. Students who earn an A or A- in 212 or 112 are entitled to credit for 300. Prereq: 111-112 or equivalent. F, Sp

Transition: Composition and Grammar through Reading (3) Provides preparation in writing skills and exercise in key elements of grammar through the development of composition, vocabulary acquisition, and compositions on assigned topics. Available to non-native or non-bilingual students of Spanish only. Prereq: Spanish 212 in lieu of equivalent or appropriate score on Spanish placement test.

Conversation and Aural Comprehension (3) Develops speaking and listening comprehension skills through a variety of in-class and extra-class activities. Not available for credit for students whose level of proficiency in Spanish is superior as defined by the ACTFL Proficiency Guidelines. Prereq: Spanish 212 or 218 or permission of department.
323 Upper-level Grammar and Composition (3) Study of the more challenging grammatical issues in Spanish with practical application in composition assignments. An in-depth review of basic covered in previous courses. Special introduction of finer points. Not available for credit for students whose level of proficiency in Spanish is superior as defined by the ACTFL Proficiency Guidelines. Prereq: Spanish 218 or 300 or permission of department. Writing emphasis course.

330 Textual Analysis (3) Introduction to the art of reading and interpreting literary texts and the writing of critical essays, with attention to language structures, literary terminology, theory and concepts such as romance, tragedy, comedy, irony, narrative voice, symbol, metaphor, etc. with application to works such as short stories, tragedy, comedy, irony, narrative voice, symbol, metaphor, etc. with application to works such as short stories, narratives, and novels. Prereq: Spanish 323. Writing emphasis course.

331 Introduction to Hispanic Culture (3) Introduction to the fundamental historical, political and demographic developments that led to the creation of the Hispanic distribution and distinctive character of Hispanic cultures, with attention to those qualities that distinguish Hispanic culture from other cultures, as well as to ethnic and linguistic components of the Hispanic world in the present day. Prereq: Spanish 323. Writing emphasis course. (Same as Latin American Studies 331.)

332 Survey of Spanish-American Literature: 1700-PreSent (3) Main writers, trends, stylistic periods and artistic movements in Spanish American literature from the 17th century to the present. Prereq: Spanish 218 or 300 or permission of department. Writing emphasis course. (Same as Latin American Studies 332.)

333 Survey of Spanish-American Literature: 1700-PreSent (3) Main writers, trends, stylistic periods and artistic movements in Spanish America from 1700 to the present. Emphasis on Neo-classicism, the Romanticism, the Realists of the 19th century, Generations of 1898, and the avant-garde of the 1920’s and 1930’s, social realism, women writers, and contemporary developments. Prereq: Spanish 323 and 330. Writing emphasis course.

334 Survey of Spanish-American Literature: Beginnings-1700 (3) Main writers, trends, stylistic periods and artistic movements in Spain and Spain America up to 1700 set against a broad background of cultural, socio-political and historical developments. Emphasis on Neo-classicism, the Romanticism, the Realists of the 19th century, Generations of 1898, and the avant-garde of the 1920’s and 1930’s, social realism, magical realism, the Latin American boom, women writers, and contemporary developments. Prereq: Spanish 323 and 330. Writing emphasis course. (Same as Latin American Studies 333.)

345-46 Language and Culture of the Hispanic Business World, (3) Commercial vocabulary, business letters, import-export, marketing. Hispanic social management, culture, and the global significance of economic & political relationships. Special attention to development of language used among Hispanic business people. Special attention to development of language used in the global Hispanic world, including the language of commerce and diplomacy. Prereq: Spanish 218 or 300 or permission of department. Writing emphasis course. (Same as Latin American Studies 345, 346.)

401 Cultural Plurality and Institutional Changes in Latin America (3) Value systems, behavioral patterns, political parties, role of the military, the church, educational institutions, dictatship and nationalization. Prereq: 6 hours of Latin American Studies courses or consent of instructor. Writing emphasis course. (Same as Latin American Studies 401.)

402 Latin American Studies Seminar (3) Selected topics in Latin American Studies. May be repeated. Maximum 6 hours. Prereq: 6 hours of 300 or 400 level Latin American Studies courses or consent of instructor. Writing emphasis course. (Same as Latin American Studies 402.)

421 Phonetics (3) Prereq: 323 or permission of instructor

422 Advanced Grammar and Translation (3) Structure of the grammatical system of Spanish. In-depth analysis of selected syntactic phenomena with practical illustration/application and exercise in Spanish-English and English-Spanish translation. Special emphasis on conjugation and pronunciation. Prereq: permission of department. Writing emphasis course.

423 Advanced Composition and Conversation (3) Develops writing and speaking skills to the advanced level, covering a wide range of topics and situations and including a variety of in-class and extra-class activities. Not available for credit for students whose level of proficiency in Spanish is superior as defined by the ACTFL Proficiency Guidelines. Prereq: Spanish 218 or 300 or permission of department. Writing emphasis course.

425 Introduction to Descriptive Linguistics (3) (Same as French 425, German 425, Russian 425 and Linguistics 425.)

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

429 Romance Linguistics (3) (Same as French 429 and Linguistics 429.)

430 Topics in Hispanic Linguistics (3) Introduction to the study of the Spanish language through different areas of linguistics such as phonology, morphology, syntax, semantics, sociolinguistics, dialectology and language acquisition. Prereq: 323, 330, 331 and completion of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course. (Same as Linguistics 431.)

433 Images of Woman in Hispanic Literature (3) Examines major Hispanic texts (and/or women authors) in the light of the relation of female individuality to a particular social context, the role of women in society, patriarchal tradition, woman as cultural and as aesthetic value ("the feminine symbolic"), and feminist theoretical issues. Prereq: Spanish 323, 330 and completion of major or minor requirements in 332, 333, and 334. Writing emphasis course.

434 Hispanic Culture through Film (3) Analysis of selected films on subjects concerning life, culture, and artistic traditions in the Hispanic world; exploration of ideological, philosophical, social, and political implications of films and a comparison of them with treatments of related topics in other types of artistic production. Prereq: Spanish 323, 330 and completion of major or minor requirements in 332, 333, and 334. Taught in Spanish. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course. (Same as Cinema Studies 434.)

461 Special Topics (3) Focus on some aspect of Hispanic literature, culture, linguistics, or foreign language pedagogy. Topics vary. May be repeated with consent of department. Maximum 6 hours.

465 Latin American Film and Culture (3) Explores Latin American and Latino/a films and videos from 1900s to present as works of art and in light of political, cultural, and historical contexts. Taught in English. Not available for Spanish major or Spanish graduate credit. Graduate credit available for Latin American Studies and Cinema Studies majors subject to completion of 6 hours with 1 hour discussion. Writing emphasis course. (Same as Latin American Studies 465 and Cinema Studies 465.)

479 Disenchantaced Texts in Hispanic Literature (3) Texts representing trends and periods of renewal in Spain and Latin American countries. Selected topics on traditions in crisis. Content will vary. Prereq: Spanish 323, 330, 331 and completion of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course. (Same as Latin American Studies 479.)

490 Social Forces in Hispanic Literary Expression (3) Analysis of major Hispanic texts that address factors and events that influenced and/or continue to influence the formation of the modern cultural and social world in the Hispanic world, including literature itself. Prereq: Spanish 323, 330 and completion of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course.

492 Trends in Hispanic Thought (3) Intellectual/philosophical currents represented in literary works, selected thinkers, or movements from historical periods of Spain and Latin America (e.g., Romanticism, Idealism, etc.). Prereq: Spanish 323, 330 and completion of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course.

484 Race, Ethnicity, and Nation in Hispanic Literature (3) Close reading and analysis of literary texts that deal with issues of race and ethnicity in the Hispanic world, exploring, with regard to identity and concepts of nationhood. Among possible course topics: mestizaje, conceptual distinctions between race and ethnicity in Latin America, indigenismo, afrocentrism, issues of monarchy and empire; relationship between Jews, Christians, and Moors in Spain. Prereq: Spanish 323, 330 and consent of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course.

486 Literary and Artistic Movements in the Hispanic World (3) Examination of relationships (thematic, cultural, socio-political, aesthetic, philosophical, etc.) between specific trends in literature and other artistic media, in the light of the historical contexts in which those relationships emerged. Prereq: Spanish 323, 330 and consent of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course.

489 Topics in Hispanic Civilization (3) Analysis of major trends, issues and/or movements in the civilizations of Spain and Spanish America. Political, literary, and cultural perspectives dealing with topics from the Middle Ages to the present day may be explored. Prereq: Spanish 323, 330 and consent of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course.

490 Internship (1-15) Career-related experiences in the field of special education, including the language of the workplace and World Business. Prereq: consent of instructor. Maximum 90 credit hours. Prereq: completion of 18 hours of upper-division Spanish and consent of instructor. Maximum of one credit hour per semester. May be repeated. Maximum 3 hours.

SPECIAL EDUCATION (932)

310 Special Education Principles (3) Introduction to the field of special education focusing on the nature and causes of disabling conditions, family systems, a history of the field, and current policies. Prereq: Admission to Teacher Education Program. Sp

320 Special Education Strategies (3) Introduction to special education program: developing the nature and scope of the condition, informal assessment, planning, development of individual education plans, applying educational, appropriate medical procedures, and effective instructional strategies. Prereq: 310, admission to Teacher Education Program.

402 Professional Studies: Special Education and Diverse Learners (2) Characteristics and needs of students with disabilities and diverse learners with emphasis on educational implications, Techniques, strategies and resources for teaching students with special learning, behavioral or medical needs, and the implications of special education. Prereq: Spanish 420 or Educational Psychology 210 and Admission to Teacher Education.

419 Psychology and Education of Students with Mild Disabilities (6) Nature and characteristics of persons with mild disabilities and the implications of the language appropriate for these persons. Prereq: 310, 320 and Admission to Teacher Education Program. Coreq: 420. F

420 Field Experience in Modified Programs (3) Practicum in teaching in modified programs: planning, developing, implementing, and evaluating instruction. Prereq: 310, 320, and Admission to Teacher Education Program. Coreq: 420. Satisfactory/No Credit only. F

431 Field Experience in Comprehensive Programs (3) On-site teaching experience with moderately and severe handicapped children. Prereq: 310, 320, and Admission to Teacher Education Program. Coreq: 430. Satisfactory/No Credit only. Sp
432 Psychology and Education of Students with Moderate/Severe Disabilities (6) Nature and characteristics of persons with moderate/severe disabilities and the educational strategies appropriate for those persons. Prereq: 310, 320, and Admission to Teacher Education Program. Sp

454 Education of the Gifted and Talented Children (3) Psychometric and behavioral studies of giftedness. Analysis of past and present school practices in relation 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, fundamentals of language development, and language impairments in school-age students; integration of oral/written communication skills into existing curriculum, especially for high-incidence special education students. Sp

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.

SPEECH COMMUNICATION (943)

100 Introduction to Speech Communication (3) Fundamental theories and practices with particular reference to intrapersonal, interpersonal, group, organizational, and public communication.

107 Honors: Introduction to Speech Communication (3) An analysis of the fundamental theories and practices of speech communication. Admission by consent of the department.

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 Communication (3) Basic principles of communication within organizations. Topics and activities may include organizational/communication theory, group problem solving, case studies, interviewing, and formal presentations.

250 Advanced Public Speaking (3) Theory and practice of informative and persuasive speaking. Prereq: 210 or 240.

260 Communication and Society (3) Study of communication strategies and public opinion, with emphasis on communication media: posters, film, songs, demonstration strategies and public opinion, with emphasis on communication theory, group problem solving, case studies, and organization. Admission by consent of instructor. (Same as Child and Family Studies 430.)

400 Topics in Speech Communication (3) Variable content course offering opportunity to study 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 a significant factor in the development, management, and resolution of conflict in the interpersonal, small group, organizational, or societal levels.

425 Interpersonal Health Communication (3) Interpersonal communication in health care settings. Topics include provider-client interactions, social support groups, stigma and disease, and contemporary models explaining the use of health-related information.

430 Family Communication (3) Dynamics of interactions within family systems, marriage, and parent-child relationships. Study of verbal and nonverbal communication processes, patterns, and problems. Prereq: Child and Family Studies 220 or Speech Communication 320 or consent of instructor. (Same as Child and Family Studies 430.)

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 for profit or nonprofit organizations, culminating in a written and oral report. Required for Junior/Senior level majors with at least a 3.0 GPA, or by special permission of Internship Director. Same as Sociology 240.

450 Propaganda (3) Study of political, commercial, and social propaganda in United States, World War I to present. Writing emphasis course.

466 Rhetoric of the Women’s Rights Movement to 1930 (3) Historical and critical study of public address in the campaign for women’s rights in the United States from the 1830s to the 1920s. (Same as Women’s Studies 466.) Writing-emphasis course.

469 Freedom of Speech (3) Historical and philosophical perspectives on freedom of expression; legal issues in free speech controversies in the United States. (Same as American Studies 469.) Writing-emphasis course.

476 Rhetoric of the Contemporary Feminist Movement (3) Historical and critical study of Feminist rhetoric in the campaign for women’s rights in the United States from the 1940s to the present. (Same as Women’s Studies 476.) Writing-emphasis course.

491 Foreign Study (1-15) See description of major concentration. Prereq: Junior/Senior standing with at least a 3.0 GPA; consent of supervising faculty member and Department prior to registration (see Department for proposal deadlines). May be repeated to a maximum 15 hours.

492 Off-Campus Study (1-15) See description of major concentration. Prereq: Junior/Senior standing with at least a 3.0 GPA; consent of supervising faculty member and Department prior to registration (see Department for proposal deadlines). May be repeated to a maximum 15 hours.

493 Independent Study (1-15) See description of major concentration. Selected readings/research in an area of speech communication to be determined by the student in consultation with supervising faculty member and Department. Prerequisite: Admission to major; at least a 3.0 GPA; consent of supervising faculty member and Department prior to registration (see Department for proposal deadlines). May be repeated to a maximum 15 hours.

497-498 Senior Honors Thesis (3) Required of students enrolled in the honors program; admission with consent of the department.

499 Proseminar in Speech Communication (1-3) Major theoretical perspectives in speech communication, their interrelationships and applications; consideration of the significance and ethical implications of speech communication in modern society. The course will cover two or more areas of the discipline. Prereq: Senior standing and completion of 100 and at least 12 hours of major requirements in speech communication. Writing-emphasis course.

SPOR T MANAGEMENT (957)

100 Orientation to Sport Management (1) Overview of the sports industry and Sport Management major. Taken the first semester as pre-major. F, Sp

250 Foundations of Sport Management (3) An introduction to the scope of the sport enterprise including why business is involved in sport and an overall evaluation of sport management as a profession. Prereq: Sport Management 100. F, Sp

290 Practicum 1 (3) Supervised part-time field experience at an approved site for the purpose of clarifying career goals. Requires a minimum of 120 clock hours. Same as Sociology 290. Prereq: Sport Management 100 and progression into the Sport Management major. F, Sp

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, and team offensive and defensive. Prereq: Consent of instructor.

312 Coaching of Basketball (1) Individual and team fundamentals for the high school coach; conditioning, schedule making, 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.

315 Coaching of Baseball/Softball (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 programs, practice organization, player evaluation, scouting, individual and team offensive and defensive strategies. Prereq: Consent of instructor.

330 Sport Communication (3) An introduction to the communications industry and its relationship with sport. Students will explore cultural issues, such as gender and ethnicity, and their relationship to sport and media. The course will also provide students opportunities to develop practical communication skills and learn how media and sport interact.

350 Sport Management: Theory to Practice (3) Overview of managerial theories and applications including responsibilities and practices associated with broad perspectives of sport enterprise. Prereq: Progression into the major, minimum 2.5 GPA, and Sport Management 250 and 260. F, Sp

370 Event Management (1-3) Study of the various principles involved in organizing, planning, and management of special events. Students will combine theory and practice through experience with assigned special events. Prereq: Sport Management 290 or consent of instructor.

380 Special Topics (1-3) Study in selected disciplinary or professional areas of Sport Management. May be repeated.

Courses of Instruction 205
365 Statistical Process Control (3) Concept of special versus common causes of variation. Construction and interpretation of control charts for attributes and vari-
ables data. Pareto charts, cause/effect diagrams and process flow diagrams. Rational subgroup issues. Process capability analysis and capability indices. Sta-

tistics concepts of precision and resolution of measurement processes. Quantifying components of variation. Introduction to design of techniques. Discus-
on of enumerative versus analytical statistical tech-
iques. Prereq: 310 or 251. E


473 Experimental Design Analysis (3) Design and analysis of single factor and multi-factor studies. Re-
sidual analysis and checking assumptions. Transformations. Sample size determination and power analysis. Analysis of variance for complex experiments. Fra-

475 Time Series Analysis (3) Model building techniques for univariate time series, analysis techniques for autoregressive-moving-average univariate time series forecasting. Box-Jenkins forecast-
ing methods, forecasting based on exponential smooth-
ing, non-stationary time series, autoregressive forecasting, fore-
casting using regression models. Use of standard comput-
ing packages. Major writing requirement. Prereq: Stat 320. Sp

483 Special Topics in Statistics (1-3) Topics vary. Prereq: Consent of instructor. May be repeated. Maxi-
mum 6 hours.

485 Principles of Statistical Process Management (3) Introduces statistical principles and tools to manage-
ment of processes. Prereq: Consent of department head. E

492 Internship (1-3) Supervised off-campus experience in application of statistical principles and methods in business, industry, or government, culminating in a written and oral report. Prereq: Permission of the Chair-
person of the Statistics Department Undergraduate Affairs Committee. Satisfactory/No credit only. May be repeated. Maximum 6 hours.

493 Independent Study (2-6) Faculty directed reading and investigation of specified topic in probability or
statistics culminating in a written report. Prereq: Two of the following courses: Stat 473, 475, 472. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

TEXILE SCIENCE (970)

220 Selection and Use of Soft Goods Manufacture (3) Study of textile products for apparel and interior furnish-
ings; emphasis on the selection of fibers, yarns, fabrics, finishes and construction details to optimize properties needed for particular end uses.

THEATRE (976)

100 Introduction to Theatre (3) Understanding theatre—
thought, philosophy, aesthetics, and production prac-
tices. Writing-emphasis course.

200 Basic Theatre Production (3) Introduction to tech-
niques for the production of costumes, scenery, and
emphasis courses. Prereq to 221: 220.

220-221 Acting (3,3) Basic Acting techniques. 221-222 Further exploration and development of acting techniques; through exercises and beginning scenen.
work. Prereq: 220—Writing-emphasis courses. Prereq: 221—Writing-emphasis courses.

300 Play Analysis (3) Study of methods and tools used in script analysis for the purpose of play production. Prereq: Theatre 100. E

320 Advanced Acting I (3) Character study and scene
study in 20th century American plays. Prereq: 220-221.

321 Advanced Acting II/Early realism (3) Scene study. Analysis and performance of late nineteenth and early

20th century plays. Prereq: 320.

323 Stage Movement (3) Introduction to movement/ dance; applications of principles in choreography. Emphasis on development and rehearsal strategies. Prereq: 220 or permission of instructor.

326 Advanced Voice and Speech (3) Breath-centered voice production; exploration and control of shaping sound; IPA; text work; Geared toward acting for the
stage.

340 Introduction to Costume Design (3) Development of research and rendering skills. Prereq: Theatre 200 or consent of instructor.

345 Costume Construction (3) Techniques in the construction of costumes for the theatre. Prereq: Theatre 200 or consent of instructor.

355 Introduction to Scenic Design (3) Introduction to art and craft of scenic design.

362 Introduction to Lighting Design (3) Mechanics and theory of stage lighting; problems in basic lighting practice. Prereq: Theatre 200 or consent of instructor.

401 Principles of Theatrical Design (3) Visual and
structural relationships in theatrical design.

409 Stage Make-Up (3) Study and problems in makeup design and application with emphasis on character
analysis. Prereq: 100.

410 Special Studies in History, Literature and Criti-
cism (3) Content varies. Concentrated study in a given period or area of Theatre History, Literature or Criticism. May be repeated.

411 Theatre History I (3) Antiquity to 1700. Major
historical periods and diverse cultural traditions in world theatre history. Prereq: Theatre 300 or consent of instructor.

412 Theatre History II (3) 1700 to contemporary theatre. Major historical periods and diverse cultural traditions in world theatre history. Prereq: Theatre 300 or consent of instructor.

420 Special Studies in Acting (3) Content varies. Exercises in selected concentrated areas such as
styles, techniques, approaches, e.g., Shakespeare, movement, humor. Prereq: 320 and consent of instructor. May be repeated. Maximum 9 hours.

421 Theatre Projects in International Theatre (3-5) Study and performance of foreign works. Content varies. Language skills required. Prerequisite: Theatre 320 and
permission of instructor(s). May be repeated for a total of nine (9) hours.

425 Selected Musical Theatre Techniques (2) Study and practice of musical theatre material including both
dance and vocal work. May be repeated. Maximum 4 hours.


446 Costume Patternmaking (3) Draping patterns for period
costumes. Includes corsetry and the study of historic
patterns 1500-1900.

450 Advanced Scenery Technology I (3) Study and
practice of theatre woodworking; production participation will be required. Graduate credit available to theatre M.F.A. students only.

451 Advanced Scenery Technology II (3) Study and practice of metalworking and plastics for theatrical productions; production participation will be required. 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. 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 experi-
ence. 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 sketch-
ing is assumed.
462 Advanced Lighting Design (3) Advanced problems in lighting design and theory including areas such as lighting musical theatre, opera, and dance. Prereq: 362 or consent of instructor.  
464 Computer Assisted Design for Theatre (3) Advanced techniques in computer assisted design for theatre. Work with CAD, Computer Drawing, Graphics, and/or 3D modeling software for preparation of theatrical designs. Specific content varies with semester. Admission by consent of instructor only. May be repeated. Maximum 9 hours. 
470 Playwriting (3) Advanced instruction in the writing of plays. Prereq: Consent of instructor. 
481 Applied Theatre (1-2) Laboratory in applied theatre technique for lower division departmental productions. Prereq: Consent of instructor. May be repeated. Maximum 6 hours. 
491 Foreign Study (1-15) 
492 Off-Campus Study (1-15) 
493 Independent Study (1-15) 

THEORY AND PRACTICE IN TEACHER EDUCATION (978) 
203 Field Study in Education (1-3) Problems of persons in active service in the field. Includes methods of teaching, curriculum materials, school-community relations and school organizations. May be repeated. Maximum 6 hours. E 
352 Field Experiences in Teaching: Secondary I (1) Field experiences in tasks related to teaching and teacher roles. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp, F 
353 Field Experience in Teaching: Secondary II (1) Field experiences in tasks related to teaching and to teacher roles. Prereq: 352 and admission to Teacher Education Program. Satisfactory/No Credit only. 
492 Directed Independent Study (1-3) Tutorial and specialized area. Prereq: consent of instructor. May be repeated. Maximum 6 hours. Satisfactory/No Credit grading or letter grade. 
493 Independent Study (1-3) Topics to be assigned. May be repeated. Maximum 12 hours. E 
494 Supervised Readings (1-3) Topics to be assigned. May be repeated. Maximum 12 hours. E 
495 Special Topics (1-3) Topics to be assigned. May be repeated. Maximum 12 hours. E 

UNIVERSITY HONORS (983) 
117-127 Honors Freshman Seminar (1,1) Sequence required of and limited to all freshman honors students. 117 concentrates on computer skills, contemporary issues, and writing. 127 concentrates on critical thinking, contemporary issues, and international study. Satisfactory/No Credit only. 
337 Honors: Concentration in the Humanities (3) Small group studies of selected topics, issues or problems with a concentration in the humanistic disciplines. Open to all students with a GPA of 3.25 or greater. Topics vary. May be repeated. 
338-348 University Scholars Seminar (1,1) Selected topics; enrollment limited to students in The University Honors Program with permission of the Director of University Honors. May be repeated. Maximum 6 hours. Letter grade only. 
347 Honors: Concentration in the Social Sciences (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. 
357 Honors: Concentration in the Natural and Applied Sciences (3) Small group studies of selected topics, issues or problems with a concentration in the natural and applied sciences. Open to all students with a GPA of 3.25 or greater. Topics vary. May be repeated. 
458 Senior Honors Seminar (1) Development and presentation of senior honors project. Limited to and required of all graduating students in The University Honors Program. Should be taken one semester prior to the semester of graduation. Satisfactory/No Credit grading only. 
491 Honors: Foreign Study (1-15) 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 (1-15) 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 (1-15) 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 Lives and Times (3) Study of biography, autobiography, and biographical theory including factors that shape individual lives. Writing emphasis. Intended for entering students. 
210-220 Special Topics in University Studies (1-8, 1-9) Interdisciplinary approaches to selected topics for lower division students. Small group discussion of various topics that transcend the boundaries of a single discipline. Writing intensive and team taught. May be repeated maximum 9 hours. Permission of instructor required. 
227 Honors: Topics in University Studies (3) Interdisciplinary approach to a significant scholarly or social issue for lower division students. Small group discussion of various topics that transcend the boundaries of a single discipline. Writing intensive. May be repeated. Maximum 9 hours. Permission of instructor required. 
310-320 Special Topics in University Studies (3,3) Interdisciplinary approaches to 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). Discussion based and writing intensive. May be repeated. Maximum: 9 hours. 
311 AIDS and Society (3) Speakers from across the state speak 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. 
317 Honors: Special Topics in University Studies (3) Honors course utilizing an interdisciplinary approach to a significant scholarly or social issue. Topics change every semester. Consult timetable for current offering. Discussion based and writing intensive. May be repeated. Maximum 9 hours. Permission of instructor required. 
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 systems with a commitment to stewardship of the planet and those with an antagonistic or neutral perception of the natural world. Systems are presented in conjunction with cultural species extinctions caused by or related to their beliefs and values. 
410-420 Advanced Topics in University Studies (3,3) 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). Discussion based and writing intensive. May be repeated. Maximum: 9 hours. 
411 Art and Organism (3) Interdisciplinary investigations of the relationship between art and biology. Readings and discussions focus on the idea that, while art is one of the most wholly human cultural endeavors, it is undeniably linked to, if not emergent from, our basic biology. 
412 Normandy Scholars Seminar: War and Remembrance (9) Enrollment is limited to honors students selected for the Normandy Scholars Program. Students take course work and travel as a learning community during their time in the program. The course has three coordinated components: (a) Values and Politics, (b) 20th Century French Literature, Culture, and Language, and (c) World War II. The course is team taught by members of various departments, and prepares students for the culminating integrative four weeks of study in France during the Summer Term. Consent of instructor required. Writing emphasis course. 
417 Honors: Advanced Topics in University Studies (3) Honors course utilizing an indepth interdisciplinary research approach to a significant scholarly or social issue. Topics change every semester. Consult timetable for current offering. Discussion based and writing intensive. May be repeated. Maximum 9 hours. Permission of instructor. 
491 Foreign Study (1-15) 
492 Off-Campus Study (1-15) 
493 Independent Study (1-15) 

URBAN AND REGIONAL 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 (3) History of city development and planning with special attention to the United States experience in urban and other levels of planning. State 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 402.) 
446 Housing (3) Nature and demand for housing in U.S. and abroad, U.S. experience. Private market processes and public influences. Problems of change in housing supply, impact of new technology, and governmental programs to improve supply and quality of housing. 

URBAN STUDIES (985) 
200 Human-Environment Systems (3) (Same as Interior Design 200.) 
250 Introduction to Urban Studies (3) Introductory survey of urban studies. Includes a lecture series with urban scholars discussing urban issues as seen by their disciplines. 
321 Urban Politics and Process (3) (Same as Political Science 321.) 
323 Behavioral Geography (3) (Same as Geography 323.) 
350 Practicum in Urban Studies (3) Introductory seminars, written assignments and hands-on experience in an organization which is working for urban change. 
401 The City in the United States (3) (Same as Planning 401.) 
402 Survey of Planning (3) (Same as Planning 402.) 
441 Urban Geography (3) (Same as Geography 441.) 
450 Directed Field Work (3) Participant observation and faculty-directed research. May be combined with 350 in urban studies subject to faculty approval. Open to Urban Studies Majors only. Prereq: Approval of department. S/N/C grading. 
454 Cities and Urban American History (3) (Same as History 454.) 
460 Senior Seminar (3) A capstone seminar taught by an interdisciplinary team of urban studies faculty in a problem solving context. Prereq: 250, 350, and senior standing. Writing emphasis course. 
464 Urban Ecology (3) (Same as Sociology 464.) 
481 Real Estate Finance and Investment Analysis (3) (Same as Finance 481.) 
482 Urban Development and Finance (3) (Same as Finance 482.) 
493 Independent Study (3-6) May be repeated. Maximum 6 hours.
WILDLIFE AND FISHERIES SCIENCE (993)

303 Communications in Wildlife and Fisheries (1)
Principles, selection, and use of effective communication methods and techniques in disseminating natural resource information; management, organization, and presentation of scientific information. Coreq: 305, 323, 330, 340, 350, 440, 442. Sp


323 Human Dimensions of Wildlife and Fisheries (1)
Examination of the linkages between people, institutions, and society at large to natural resource management practices. Case studies and application of basic skills of group communication and collaborative problem solving and planning will be emphasized. Overnight field trips required. Coreq: 303, 305, 330, 350, 440, 442. Sp


341 Law Enforcement and Public Relations (3) Fundamentals and general principles of local, state and federal laws and regulations governing natural resources and their management. Principles and practices of interacting with the public. Prereq: English 102 and Speech 210 or 240 or consent of instructor. F

350 Wildlife Damage Management (3) Principles and methods for wildlife damage management including biological, regulatory, practical, and social considerations. Weekend field trips required. Prereq: FW 317 or consent of instructor. 2 hours and 1 lab or field. Sp

440 Wildlife Techniques (3) Methods in wildlife damage control, forest, farmland, and wetland habitat management, identification of wildlife field sign, wildlife capturing techniques and management plan preparation. Weekend field trips (2) required. Prereq: FW 317 or consent of instructor. 1 hour and 1 lab or field. F

442 Fisheries Techniques (3) Active and passive sampling techniques for fish and aquatic organisms; population estimation methods; fish handling and transport; food habits analysis; marking and tagging techniques; age determination and incremental growth analysis; stream assessment; equipment and instrumentation usage and maintenance; safety in sampling methods. Weekend field trip may be required. Prereq: FW 317 or consent of instructor. 1 hour and 1 lab or field. F

443 Fisheries Science (3) Quantification and management of freshwater fisheries including population estimation, age and growth, biological assessment, and stock- es. Prereq: FW 317 or consent of instructor. 2 hours and 1 lab. Sp

444 Ecology and Management of Wild Mammals (3) Biological and ecological characteristics of game mammals and endangered mammals. Current principles and practices of wild mammal management. Prereq: FW 317 or consent of instructor. 2 hours and 1 lab. One weekend field trip required. Sp

445 Ecology and Management of Wild Birds (3) Ecological and ecological characteristics of game birds, endangered birds, and bird pests. Concepts principles and practices of wild bird management. Prereq: FW 317 or consent of instructor. 2 hours and 1 lab. One weekend field trip required. Sp

490 Ethics in Wildlife and Fisheries Management (1) Ethical bases for decision-making and application of methodologies in the practice of wildlife and fisheries management. A series of seminars presented by ethicists, wildlife and fisheries scientists and managers, and foresters will be used to acquaint students with a diverse perspective of ethical behavior in the practices of wildlife and fisheries management, lectures, panel discussions, and case studies. Team taught. Prereq: Senior standing and major in natural resources. Satisfactory/No Credit grading only. S

493 Independent Study in Wildlife and Fisheries Science (1-15) Special research or individual problem in wildlife and fisheries science. Letter grade or Satisfactory/No Credit. E

496 Internship in Wildlife and Fisheries Science (1-6) Supervised experience at departmental-approved employment location arranged by the student. Internship learning objectives must be pre-approved by the advisor/instructor and the field supervisor. Daily log, supervisor evaluations, and final report required. One credit per two weeks of full-time supervised field experience maximum. Up to 3 credits may be used for science elective. Prereq: Senior standing, consent of instructor. May be repeated. Maximum 6 hours.

WOMEN’S STUDIES (994)

210 Images of Women in Literature: Biography and Autobiography (3) Introduction to women’s journals, diaries, biographies and autobiographies. Writing-emphasis course.

215 Images of Women in Literature: Fiction, Poetry, Drama (3) Introduction to the study of women through the genres (fiction, poetry, and drama), including works from diverse historical periods and cultures. Writing-emphasis course.

220 Women in Society (3) Role played by women in various societies during different historical periods, factors which have limited women’s participation in society, social scientists’ assumptions about women.

230 Marriage and Family: Roles and Relationships (3) (Same as Child and Family Studies 220.)

300 Analysis of Women in American Art (3) Historical and critical study of the role of women in American art. Major topics include women’s legal and political status, the emergence and development of feminism, women and the creative arts, and women’s roles in industrial and post-industrial American society. Writing-emphasis course.

320 Women and Religion (3) (Same as Religious Studies 320 and Judaic Studies 320.)

330 Women in Music (3) (Same as Music History 330.) Writing-emphasis course.

332 Women in American Literature (3) (Same as English 332.)

340 Women, Politics, and the Law (3) An examination of the role of women in contemporary American politics. (Same as Legal Studies 340.)

360 Women in Cross-Cultural Perspective (3) A study of the role of women in various contemporary cultures: industrial democracies, developing nations, communist countries. A team-taught course (Same as Speech Communication 476) with guest lectures and slide presentations.

375 Gender in Society (3) (Same as Sociology 375.)

382 Philosophy of Feminism (3) (Same as Philosophy 382.) Writing-emphasis course.

383 Women in the Greek and Roman World (3) (Same as Classics 383.) Writing-emphasis course.

400 Topics in Women’s Studies (3) Content varies. May be repeated.

410 Sex/Race Development: Implications for Education and Counseling (3) (Same as Educational and Counseling Psychology 410.)

422 Women Writers in Britain (3) (Same as English 422.)

425 Women’s Health (3) (Same as Health 425.)

432 Women in European History (3) (Same as History 432.) Writing-emphasis course.

433 French and Francophone Women Writers (3) (Same as French 433.)

434 Psychology of Gender (3) (Same as Psychology 434.) Writing-emphasis course.

453 Women in American History (3) (Same as History 453.) Writing-emphasis course.

466 Rhetoric of the Women’s Rights Movement to 1930 (3) Historical and critical study of public address in the campaign for women’s rights in the United States from the 1930s through the 1920s (Same as Speech Communication 466.) Writing-emphasis course.

469 Sexuality and Cinema (3) Explores issues surrounding sexuality, gender and cinema from points of view of feminist film criticism. (Same as Cinema Studies 469.)

476 Rhetoric of the Contemporary Feminist Movement (3) Historical and critical study of rhetoric in the campaign for women’s rights in the United States from the 1940s to present. (Same as Speech Communication 476) Writing-emphasis course.

483 African-American Women in American Society (3) (Same as African and African-American Studies 483.)

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15) Registration by consent of chair of Women’s Studies.