Courses in the following designated fields of study are strongly recommended of students seeking a commission in the United States Army: one course in written communications; one course in human behavior; one course in math reasoning; one course in computer literacy.

Special Programs

Pay and Entitlements

All scholarship cadets and cadets enrolled in the ROTC Advanced Course receive uniforms and equipment plus a monthly allowance during the academic year. While attending the ROTC summer studies each cadet receives approximately $740 for Advanced Summer Studies, $740 for Basic Summer Studies, plus meals and clothing are provided.

Army ROTC Scholarship Program

The Army ROTC scholarship program offers financial assistance to outstanding young men and women in Army ROTC who are interested in the Army as a career. Each scholarship provides for free tuition, textbooks subsidy, and laboratory fees in addition to a monthly subsistence allowance for the period that the scholarship is in effect. Scholarships may be awarded for either two, three, or four years. High school seniors should contact their guidance counselors early in August or September of their senior year to apply for the four-year scholarship. Two and three-year scholarship applicants should contact the Professor of Military Science and Leadership for further information. Other privately financed scholarships and grants are also available to ROTC cadets.

Leadership Grant Program

The University of Tennessee ROTC Leadership Grants are designed to attract and retain high quality/caliber students to the Army ROTC program for future positions of leadership within their service and our country. These grants are intended to complement other ROTC and University scholarships by providing funds to offset costs for such areas as: room and board; out-of-state tuition; and first year expenses for Army ROTC scholarship winners.

Up to ten (10) $1,000 Leadership Grants are available each year and are available to scholarship winners and any full-time student enrolled in the AROTC program. Awarding of these Leadership Grants will be determined by the Professor of Military Science and Leadership who will evaluate each candidate in the following areas: ACT/SAT scores; leadership activities; and recommendations from high school personnel and community leaders.

Simultaneous Membership Program

The “SMP” option combines the Army ROTC living allowance with membership in the Army Reserve or Army National Guard and allows the student to receive pay from both programs. ROTC cadets serve as “officer-trainees” in direct leadership/management positions. SMP participation with National Guard or reserve forces is one weekend per month and two weeks each year. Cadets participating in the SMP program are eligible for tuition reimbursement (75%).

Branch Selection

The curriculum of the Army ROTC Program is designed to qualify the cadet for appointment as an officer. Selection for assignment to the various branches of the Army is based upon: the personal interests of the cadet; the major course of study; academic accomplishments; leadership potential; and the needs of the Service. Under this system a cadet may be commissioned in any branch for which he or she is qualified and in which a need for officers exists. After graduation and commissioning, the officer will attend a service school for further specialized military training which will qualify him or her for the branch to which he or she is assigned.

Extra Curricular Activities

Numerous military related activities are available to cadets throughout the school year. These include the Tennessee Rangers, Scabbard and Blade Honor Society, and UT Color Guard. These organizations provide both student-to-student contact and a valuable opportunity to acquire military skills. Additionally, each semester, a number of field training exercises are conducted to develop such military skills as small unit tactics, land navigation and rifle marksmanship.

Physical Fitness Training

The Cadet Battalion conducts physical fitness training Monday-Wednesday-Friday. The exercise program focuses on flexibility, muscular strength, and cardio respiratory endurance. Any University of Tennessee student may take the course by registering for Army Conditioning Program 130.

Military Science and Leadership Curriculum

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours Credit</th>
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<tr>
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Basic Military Studies—Practicum

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<tr>
<td>Military Science and Leadership 400</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
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</tbody>
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Variations to these sequences of study may be approved by the Professor of Military Science and Leadership on a case-by-case basis. Lower division credit hours granted by the University for military service are dependent upon time spent in service and service schools attended.
Progression Requirements

1. Minimum semester hours/GPA for entrance into Basic Military Studies-Practicum (Military Science and Leadership 200): 30 semester hours/2.00 GPA.
2. Minimum overall GPA for entrance into the Advance Course (Military Science and Leadership 301, 302, 400, 401, 402): 2.00
3. Minimum GPA in Military Science and Leadership Courses: 3.00.
4. Minimum overall GPA for commissioning: 2.00.
5. Semester counseling sessions with military advisor required for Advance Course and scholarship students only.

Department of
AIR FORCE

http://web.utk.edu/~rotc800/

AIR FORCE ROTC PROGRAM

Professor of Air Force Aerospace Studies
Colonel Marty Coffman, M.S., University of North Carolina

Assistant Professors
Lieutenant Colonel John Cherry, M.A. Chapman University; Lieutenant Colonel Stan Shrader, M.A.S. Golden Gate University; Major David Wims, M.A. University of Alabama, Captain James Evans, M.S., Troy State University

Purpose

The Air Force Reserve Officers Training Corps (AFROTC) is an educational program designed to provide the college student an opportunity to earn an Air Force commission as a Second Lieutenant while completing the University requirements for a bachelor’s degree. The program provides education that will develop the skills and attitudes vital to the professional Air Force officer. Upon successful completion of the program and graduation from the University, students are commissioned as Second Lieutenants and enter active duty.

The Programs

Four-Year Program

Students entering the Four-Year Program may register for the program at the same time and in the same manner as they enroll in their other college courses and there is no military obligation. During their freshman and sophomore years, students enroll in the General Military Course (GMC). They then may compete for entry into the Professional Officer Course (POC), which is normally taken during the last two years of college. Selection into the POC is highly competitive and is based on being medically qualified; physically fit; term and cumulative grade point averages; scores achieved on the Air Force Officer Qualifying Test (AFOQT); successful completion of a four-week field training course at an Air Force base; and the recommendation of the Professor of Aerospace Studies.

Two-Year Program

The Two-Year Program consists of the Professional Officer Course (POC), the last two years of the Four-Year Program. It is designed to provide greater flexibility to meet the needs of both students and the Air Force. The basic requirement is that applicants have two academic years remaining at either the undergraduate or graduate levels, or a combination of both. After being nominated by the Professor of Aerospace Studies, applicants seeking enrollment in the Two-Year Program are evaluated using the same criteria used for the four-year program except the length of the field training course is six weeks. Additionally, every POC applicant must agree to take and successfully complete a course in mathematical reasoning or its equivalent before graduation and commissioning. Courses previously completed may be used to satisfy this requirement.

Since the processing procedure must be completed several months in advance of intended enrollment, interested students must apply early in the fall semester of the academic year preceding the fall term in which they intend to enter the program. Application should be made in person to the Department of Aerospace Studies.

AFROTC develops students under the “whole person” concept. Cadets must maintain academic standards while taking on the additional responsibilities of AFROTC. These extra responsibilities include being physically fit and demonstrating integrity and good moral character. Cadets normally participate in approximately two hours per week of physical activity outside of class requirements.

Women in AFROTC

AFROTC at The University of Tennessee has been coeducational since 1970. Women complete the same courses as men and have the same opportunities. Upon successful completion of the AFROTC program and degree requirements, women are commissioned in the Air Force as Second Lieutenants. Pay and job opportunities are equal for women and men. Virtually all career fields in the Air Force are open to women, including pilot and navigator positions.

Scholarships

Air Force ROTC Scholarships are available to qualified applicants in both the Four- and Two-Year Programs. Each scholarship provides full tuition, laboratory and incidental fees, and book fee. In addition, scholarship cadets receive a non-taxable stipend ranging from $200 to $400 each month during the school year while on scholarship status.

High School Students

Competitive four-year scholarships are available to high school students who enroll in certain scientific and engineering career fields. Some scholarships are also available to students who enroll in certain non-technical majors. Four-year scholarship application information is available on the AFROTC website at http://www.afrotc.com/.

College Students

Other scholarship opportunities exist for students already in college. Three- and two-year scholarships are available on a competitive basis and the student must have at least four, three, or two undergraduate or graduate years of study remaining in order to compete. Applications for these scholarships should be made directly to the Department of Aerospace Studies.

Leadership Grants

The University of Tennessee AFROTC Leadership Grants are designed to attract and retain high quality students to the Air Force ROTC program for future positions of leadership.
Advanced Studies

THE COLLEGE OF LAW

Thomas C. Galligan, Jr., Dean
John Sobieski, Jr., Associate Dean
Rachael E. Inman, Assistant Dean

The College of Law has, since 1890, continuously sought to provide high quality legal education in a University community. The college offers a professional curriculum leading to the degree of Doctor of Jurisprudence. Two dual degree programs are available in conjunction with the College of Law: the J.D.-MBA program with the College of Business Administration and J.D.-M.P.A. program with the Department of Political Science.

Information regarding admission, financial aid, academic policies, extracurricular activities, and student services is available from the Admissions Office, The University of Tennessee, College of Law, 1505 W. Cumberland Avenue, Knoxville, Tennessee 37996-1810. The completed application should be received before February 1 of the year of requested admission.

The Graduate Catalog contains complete information concerning the programs in the college. Forms and instructions for making application for admission may be obtained beginning June 1 from the Office of the Associate Dean, The University of Tennessee, Knoxville, College of Veterinary Medicine, 2407 River Drive, Room A102, Knoxville, Tennessee 37996-4550. Applications must be received by the Veterinary Medical College Application Service (VMCAS) by November 1 of the year prior to requested admission. All pre-veterinary requirements must be completed by the end of the spring term of the year in which the student plans to enroll in the college.

OFFICE OF GRADUATE STUDIES

Anne Mayhew, Vice Provost and Dean of Graduate Studies
S. Kay Reed, Assistant to the Dean

A wide range of graduate programs leading to master’s and doctoral degrees is available. The University offers master’s programs in 76 fields, the Educational Specialist degree, doctoral work in 44 fields, 2 professional programs, and several graduate certificate programs. More than 6,000 graduate and professional students are enrolled on and off campus under the tutelage of 1,500 faculty members.

Complete information concerning graduate study at The University of Tennessee is available in the Graduate Catalog published annually and on the Graduate Studies web site: http://web.utk.edu/~gsinfo.

COLLEGE OF VETERINARY MEDICINE

Michael J. Blackwell, Dean
James J. Brace, Associate Dean

The College of Veterinary Medicine, established in 1974, offers a professional curriculum leading to the degree of Doctor of Veterinary Medicine (D.V.M.). The college offers graduate studies leading to the degrees of Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) with a major in Comparative and Experimental Medicine. Residency training programs in the various clinical specialties are also offered.
The University of Tennessee is committed to its land-grant mission of public service. The institution meets that mission by extending its continuing education services and programming resources through outreach initiatives. University Outreach and Continuing Education works with academic departments to offer courses, educational services and programs to students, teachers and faculty. The division offers programs using a variety of modes, helping people of all ages achieve degrees and certificates, accomplish professional development goals, and pursue recreational and intellectual interests.

Programs and courses are based upon student needs and desires, whether for self-motivated learning; for leisure and recreational programs; or for professional promotion, certification, licensure, re-licensure, or mid-career changes. The Division provides these opportunities through program coordination and development of the four departments: Department of Conferences, Department of Distance Education and Independent Study, English Language Institute, and Professional and Personal Development.

For more information, contact:
University Outreach and Continuing Education
1534 White Avenue
Knoxville, Tennessee 37996-1526
Phone: (865) 974-3181, fax: (865) 974-6629
E-mail: outreach@tennessee.edu
Web Site: www.outreach.tennessee.edu

University Outreach and Continuing Education

Department of Conferences and University Conference Center
Norvel Burkett, Associate Dean and Director
Robert Gibbs, Assistant Director

The Department of Conferences, housed in the Conference Center Building in downtown Knoxville, provides management services to university departments and faculty or outside groups that desire to hold an educational meeting anywhere in Tennessee or across the United States.

The department assists organizations in designing and managing programs to meet the needs of attendees. The staff provides professional guidance and management for small group meetings as well as for major conventions of several thousand delegates. Consulting and support services can include planning and budgeting, registration, lodging, food services, promotional materials, meeting-site management and all details to ensure a successful event. Some programs qualify for Continuing Education Units (CEUs), which become a permanent record maintained by the University Outreach and Continuing Education.

Additional information may be obtained from:
University of Tennessee Conferences
P.O. Box 2648
Knoxville, Tennessee 37901
Phone: (865) 974-0250, fax: (865) 974-0264
E-mail: conferences@tennessee.edu
Web Site: www.outreach.tennessee.edu/conferences
University Conference Center
Norvel Burkett, Associate Dean and Director
Robert Gibbs, Assistant Director

The University Conference Center, managed by the Department of Conferences, offers quality meeting facilities and service to university units, business and industry groups, professional organizations, and government agencies. Professional groups and interested individuals can request interactive videoconferencing to locations worldwide. Arrangements can also be made to receive (downlink) programming or transmit (uplink) programming via satellite. The University Conference Center is located at 600 Henley Street in downtown Knoxville.

Additional information may be obtained from:
University of Tennessee Conference Center
Suite 212
Knoxville, Tennessee 37996
Phone: (865) 974-0250, fax: (865) 974-0264
E-mail: conferences@tennessee.edu
Web Site: www.outreach.tennessee.edu/conferences

English Language Institute
Jim Hamrick, Director

The English Language Institute (ELI) offers a non-credit language-study program. It is designed to assist students in their pursuit of career goals or educational objectives in the United States. The courses emphasize development of communicative ability in listening, speaking, reading, and writing. Faculty members are trained in teaching English to speakers of other languages and different national backgrounds, with varying proficiency in English.

The curriculum consists of eight proficiency levels: 101-108, Introductory through Pre-Academic.

Classes meet 3-5 periods each day with emphasis on English Structure (Grammar); Listening Comprehension, Writing/Composition (Rhetoric), Conversation Practice for Communicative Purposes, Reading and Vocabulary.

Classes also assist students in pronunciation, test-taking strategies, U.S. culture orientation, and university study skills.

Additional information may be obtained from:
English Language Institute
907 Mountcastle Street
Knoxville, Tennessee 37996-3505
Phone: (865) 974-3404
Fax: (865) 974-6383
E-mail: eli@tennessee.edu
Web Site: www.outreach.tennessee.edu/ELI

Professional and Personal Development
Gayle Cooper, Assistant Dean and Director
Nissa Dahlin-Brown, Assistant Director

Professional and Personal Development provides a comprehensive array of non-credit courses, certificates, and seminars designed to serve the needs of individuals and businesses in Knoxville and surrounding communities. Courses are offered on the University campus, at off-campus locations, and on-line. They are taught by university faculty, staff, and community experts. Courses also are delivered on-site for business clients, with instructional services tailored to the needs of each group.

Business topics include professional development, career planning, computer training, and small business development. Personal interest topics range from business and computers to art, dance, gardening, music, and sports. There are also courses that meet requirements of the state or other agencies for certification in real estate and financial planning.

Special programming also includes Kids U, providing summer hands-on workshops for elementary and secondary education students; Seniors for Creative Learning, a membership-based program focusing on issues and courses for senior adults; and the Smoky Mountain Field School, a program co-sponsored with Great Smoky Mountains National Park.

For further information or to register, contact:
Professional and Personal Development
1534 White Avenue
Knoxville, Tennessee 37996-1526
Phone: (865) 974-0150
Fax: (865) 974-0154
E-mail: ProfessionalPgms@tennessee.edu
Web Site: www.outreach.tennessee.edu/ppd

Department of Distance Education and Independent Study
George H. Hoemann, Assistant Dean

The Department of Distance Education and Independent Study, in concert with academic departments, offers Internet-based, Web-delivered classes, and programs leading to certificates and degrees. The College of Communication and Information and the College of Engineering offer Master’s degree programs through Web-based courses, while the Departments of Nuclear Engineering and Statistics offer courses leading to degree and certificate programs. Other undergraduate and graduate classes and programs are available, as well as a variety of individual courses in many disciplines. Current course availability can be found on the Web at anywhere.tennessee.edu.

The department provides services and support for faculty, students, and industry interested in flexibly-delivered education.

The Internet eLearning Institute provides certificate programs, professional development courses and training for information technology professionals or individuals wanting expertise in Internet technology. Courses are offered over the World Wide Web in the areas of e-commerce, Web databases, Web mastering, network systems engineering, administrative technology, technical sales, and instructional technology.

For information and registration forms, contact the Distance Education Program at:
Distance Education and Independent Study
1534 White Avenue
Knoxville, Tennessee 37996-1525
Phone: (865) 974-1534 or (800) 670-8657
Fax: (865) 974-4684
E-mail: DistEducation@tennessee.edu
Web Site: www.outreach.tennessee.edu
Courses of Instruction

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.

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. Prereq: 201.

207 Honors: Accounting: Principles of Financial Accounting (3) Introduction to financial accounting theory and practice with emphasis on the role of financial information in business decisions. The course will make extensive use of computer technology for retrieving and analyzing financial information. Eligibility: 28 ACT Composite or 1250 recentered SAT Composite.

311 Financial Reporting and Analysis (3) Theory and practice that underlies the preparation, analysis, and use of financial statements. Prereq or Coreq: Finance 301 and Business Administration 342.

312 Cost Management (3) Cost information for products, services, and how cost information is recorded, analyzed, reported, and used in decision making. Topics include cost concepts and behavior, cost systems, budgeting, activity-based costing and management, and strategic cost management. Prereq or Coreq: Business Administration 342.

411 Financial, Compliance, and Operational Auditing (3) Auditing’s role in society from an internal and external perspective, audit methodology, role of internal control and statistical sampling in auditing, fraud auditing, operational auditing, compliance auditing, and application of auditing procedures to specific transaction cycles. Prereq: 202.

414 Advanced Financial Reporting (3) Accounting standards for advanced financial reporting topics such as statement of cash flows, income taxes, leases, accounting changes, consolidated financial statements, and foreign operations. Prereq: 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 standards for governmental and nonprofit organizations. Prereq: 414 or permission of the instructor.

431 Federal Income Taxation (3) Fundamentals and concepts of federal income taxation. Emphasis on tax strategy, business taxation, and individual taxation. Topics include tax strategy modeling, gross income, deductions, credits, tax determination, property transactions, business entities, and basics of international taxation. Prereq: 311 with a C or better or consent of instructor.

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.

492 Accounting Internship (1-6) Satisfactory/No Credit grading only. Prereq: Consent of instructor.

AEROSPACE ENGINEERING

See Engineering Aerospace.

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. Prereq: 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. Prereq: 250, Communication 100 or Speech Communication 100.


380 Advertising Professional Seminar (1) Exploration of career choices in mass communications. Resume and letter writing, interviewing, and portfolio preparation. Prereq: Progression as a major in the School of Advertising and Public Relations.

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

470 Advertising Campaigns (3) Group-based development, execution and evaluation of an advertising campaign for a regional or national client. Prereq: 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. Prereq: 340.

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. Prereq: Progression as a major in the School of Advertising and Public Relations. Satisfactory/No Credit grading only.

493 Independent Study (1-3) Individual study in a specialized area under the supervision of a faculty member. Prereq: Consent of instructor.
AFRICAN AND AFRICAN-AMERICAN STUDIES (022)

162 Art of Africa, Oceania, and Pre-Columbian America (3) (Same as Art History 162.)

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 society, 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, precocious 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, post-colonial dependency, contemporary problems, and current liberation struggles in various areas of the continent.

310 Introduction to African-American Music (3) (Same as Music History 310.)

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

319 Caribbean Cultures and Societies (3) (Same as Anthropology 319 and Latin American Studies 319.)

331 Race and Ethnicity in African American Literature (3) (Same as English 331.)

333 Black American Literature and Aesthetics (3) (Same as English 333.)

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

350 History of Jazz (3) (Same as Music History 350.)

352 African-American Religion in the United States (3) (Same as Religious Studies 352.)

353 Topics in African-American Religion (3) (Same as Religious Studies 353.)

364 Contemporary Issues in African American Education (3) 1954 to the present. Examines issues relevant to the current dilemma of providing quality education for the African-American student including professional school quotas, intelligence testing, homogeneous grouping, African-American college survival, busing, Black English/Standard English controversy. Writing-emphasis course.

371-372 African History (3,3) (Same as History 371-372.)

373 African Religions (3) (Same as Religious Studies 373 and Anthropology 373.)

379 Geography of Africa (3) (Same as Geography 379.)

381 History of South Africa (3) (Same as History 381.)

420 Family Diversity (3) (Same as Child and Family Studies 420.)

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 History 421.)

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, and higher education levels. Writing-emphasis course.

431 Research Seminar in African-American Studies (3) Teaches basic approaches to the research process and development of research skills. Students design and implement a research project of their choice in the field of African-American Studies. Prereq: 201-202 and senior standing. Writing-emphasis course.

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

443 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 Polities (3) (Same as Political Science 452.)

461 Art of Southern and Eastern Africa (3) (Same as Art History 461.)

462 Art and Archaeology of Ancient Africa (3) (Same as Art History 462.)

463 Arts of the African Diaspora (3) (Same as Art History 463.)

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 influences of the 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.

483 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.

491 Foreign Study (1-15) Prereq: 201-202 and consent of instructor.

492 Off-Campus Study (1-15) Prereq: 201-202 and consent of instructor.

493 Independent Study (1-15) Prereq: 201-202 and consent of instructor.

496 Biology of Human Variability (3) (Same as Anthropology 496.)

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 up to a maximum of 6 hours.

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 emphases will be studied by students. Foundation course for departmental majors and service course for those interested in related careers.

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

345 Agricultural Education and Program Planning (3) Overview of the historical and philosophical aspect 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.

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.

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.


492 Internship In Agricultural and Extension Education (1-6) Pre-approved off-campus supervised experience in county Extension offices, agricultural businesses, or agricultural related agencies. (Requires living off-campus for a specified time.). May be repeated up to a maximum of 6 hours. Prereq: 211, or consent of Instructor.

493 Independent Study (1-3) Individualized study of a special project or problem in Agricultural and Extension Education. Must be selected in consultation with the instructor. Prereq: Consent of instructor. May be repeated for credit. Maximum 6 hours.

AGRICULTURAL ECONOMICS (047)

110 Opportunities in Agricultural Economics and Business (1) Overview of current issues and career opportunities. For majors and non-majors.

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 trade and development. Economic aspects 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.

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, controlling, and directing. Specific topics include firm structure, forecasting, marketing and selling, budgeting, break-even analysis, use of financial statements, capital investment, supervision, staffing, and evaluation.

310 The Agricultural Employment Process (1) Career planning, job markets in the agricultural industry, and techniques to obtain employment including recruitment/placement services, resume construction, personal interviewing, and job offer evaluation/analysis.

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

330 Economics of Agricultural Biotechnology (3) Analysis of economic issues and impacts associated with the development and adoption of agricultural biotechnology, especially the introduction of genetically modified organisms. Specific topics include farm level adoption decisions, changes in agribusiness industry structure, changes in the marketing system, consumer attitudes and the role of labeling, international trade issues, and agricultural development in the Third World. Prereq.: Economics 201 and Junior standing.

337 Honors: Economics of Agricultural Biotechnology (3) Meets at same time as Economics 330 but requires additional work in the form of article reviews and a research paper. Prereq: Economics 201 and Junior standing.
342 Farm Business Management I (3) Principles and procedures for determining most profitable business organizations and systems of operation; attention to 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: 212 and Economics 201.

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: 212 and Economics 201.

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

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 including an extensive promotional plan, financial analysis, and evaluation. Requires preparation of final plan for presentation in written, oral and visual formats. Plan presented in national competition during the National AgriMarketing Conference. May be repeated to a maximum of 6 hours. Prereq: Consent of instructor.

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, students will explore the imputes of efficiency and equity as driving forces behind public sector and private sector initiatives to induce, manage and forecast development. Prereq: Economics 201.

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 content of agricultural decision making. Analysis of contemporary issues in the field of agricultural economics.

412 Agricultural Finance (3) Macro-finance, financial objectives, acquisition of debt and equity funds, capital investments, capital allocation, debt repayment, credit analysis, borrowed funds, tender loan application analysis, insurance strategies, computer applications, kinds and sources of agricultural credit, and financial intermediation. Prereq: 212 and Economics 201.

420 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.

422 Agribusiness Management (3) Applications of advanced decision analysis concepts and tools to analyze management decision problems in farm and nonfarm agribusiness settings. Case study work on strategic planning; assessing cost structure using budgeting and breakeven analysis; evaluating profitability, liquidity, and solvency using financial statements; analyzing investments using capital budgeting; etc. Prereq: 320 or consent of instructor.

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

442 Agribusiness Management (3) Applications of advanced decision analysis concepts and tools to analyze management decision problems in farm and nonfarm agribusiness settings. Case study work on strategic planning; assessing cost structure using budgeting and breakeven analysis; evaluating profitability, liquidity, and solvency using financial statements; analyzing investments using capital budgeting; etc. Prereq: 320 or consent of instructor.

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.

470 Natural Resource Economics (3) Overview of the environmental tradeoffs that have been, are, and will be required to produce the food, fiber and other products needed to feed, clothe, and house a growing world population. Topics to include basic natural resources, credit practices in agriculture, forestry, and food handling, and practices related to quality of life issues, such as wildlife and landscape design. This course may not be offered by College of Agricultural Sciences and Natural Resources students to satisfy directed elective requirements.

491 International Experience in Agriculture and Natural Resources (1-15) Credit for international experiences related to agricultural sciences and natural resources. Determination of credit based on nature of the proposed experience. Students should discuss the opportunity with their faculty advisor prior to the trip to determine if it is appropriate for credit. Credit hours will be determined by the department and college depending on the extent of activity and types of projects and/or presentations to be completed by the student upon return. Letter grade or Satisfactory/No Credit grading.

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 member. Prereq: Participation in the CASNR Honors Program.

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.

AIR FORCE AERO SPACE STUDIES (094)

101-102 The Air Force Today (1,1) Survey that focuses on the organizational structure and mission of the Air Force; officereship and professionalism; and includes an introduction to communicative skills. A weekly Leadership Laboratory (LLAB) consisting of Air Force customs and courtesies, health and physical fitness, and drill and ceremonies is mandatory.

103-104 Leadership Laboratory (1,1) 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. Satisfactory/No Credit grading only.

201-202 The Development of Air Power (1,1) Focuses on factors contributing to 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) 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. Satisfactory/No Credit grading only.

205 Field Training (Academic Program) (1,4) Role of United States military forces in contemporary world, with particular attention to the United States Air Force, 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 country. Open only to two-year program applicants.

301-302 Air Force Leadership and Management (3,3) 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 initiatives and general situations as a means of demonstrating the 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 principles and concepts.

303-304 Leadership Laboratory (0,0) Consists of activities classified as advanced leadership experiences. They involve planning, organizing, staffing, coordinating, directing, and controlling the military activities 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.

401-402 National Security Forces in Contemporary American Society (3,3) Examines the need for national security, analyzes the evolution and formulation of the American defense policy, strategy, and joint doctrine; investigates the methods for managing conflict; and overviews regional security, arms control, and terrorism. Special topics of interest focus on the military as a profession, officereship, the military justice system, and current issues affecting military professionalism. Within this structure, continued emphasis is given to the refinement of communicative skills. A weekly Leadership Laboratory (LLAB) consisting primarily of advanced leadership experiences in office-type activities is mandatory.

403-404 Leadership Laboratory (0,0) Consists of activities classified as advanced leadership experiences. They involve planning, organizing, staffing, coordinating, directing, and controlling the military activities 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 elementary study and interpretation. Considers 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.)
ANIMAL SCIENCE (113)

160 Introduction to Animal Science (3) Preparation of academic plans and career discussion. 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 hrs.

220 Anatomy and Physiology of Farm Animals (3) Skeleton and joints; 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.

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 utilization, waste management, food safety, animal reproduction, health and well being, and emerging technologies and opportunities in animal agriculture. 2-3 hour labs.

285 Horse Handling and Care (3) Proper procedures for horse-human interaction and the 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 include imprinting, haltering, halter training, lunging, long-line driving, bridling, biting, round pen training, saddling and teaching to guide. Basic care includes feed selection and management, post-natal care, restraint, foot care, dental care, grooming, loading and trailering, 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 labs.

320 The Physiology of Reproduction and Lactation (3) Biology of sex and sexual differentiation, functional anatomy of male and female, reproduction and lactation, gametogenesis, neuroendocrinology and endocrinology of reproduction and lactation, sex cycles, folliculogenesis, ovulation, spermatogenesis, fertilization, embryonic development, implantation, pregnancy, parturition, initiation of lactation and maintenance of the dry period, artificial control of reproduction and lactation. Prereq: Biology 102 or 130. 2 hours and 1 lab. (Same as Biochemistry and Molecular Biology 320.)


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.


362 Dairy Cattle Evaluation (2) Comparative judging, oral reasons, breed classification programs, economic value of conformation traits. Prereq: 160. 2 labs.

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.

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

381 Animal Nutrition and Production Systems (3) Fundamentals of production and 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. Decision making management practices and information resources, enterprise evaluation, and comparison of production systems. 2 hours and 1 lab. No credit for majors.

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.

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 American Indian cultures at the time of European contact. Emphasis on Cherokee culture and on the social, economic, and religious organization of aboriginal groups. Prereq: 130 or consent of instructor.

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

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

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 perspective and discusses the anthropological notion of “people” within the complexity of indigenous and black social formations. Writing-emphasis course. (Same as Latin American Studies 314.)

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

320 American Cultures (3) Anthropological perspectives on cultural diversity in America, including the immigrant experience and expressions of ethnicity, intercultural relations, occupational and interest group subcultures. Writing-emphasis course. (Same as American Studies 320.)

321 Indians of Northwest North America (3) Survey of American Indian cultures found in the Northwest Coast, Columbia Plateau, and Northern Great Basin culture areas. Writing-emphasis course.

357 Junior Honors in Anthropology (3) Analytical, integrative review of current directions of research and theory in Anthropology. Open to students with an overall GPA of 3.5 who have fulfilled progression requirements to declare a major in Anthropology.

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

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

362 Principles of Archaeology (3) Research strategies used in developing method and theory, constructing cultural histories, identifying site function and settlement-subsistence patterns, and evaluating explanations of cultural change. Prereq: 120 or consent of instructor.

363 Prehistory of Tennessee (3) Archaeological principles and theory illustrated in history of archaeological research in Tennessee and survey of prehistoric Indian cultures from initial occupation of the state to European contact. Prereq: 360 recommended. Writing-emphasis course.

373 African Religions (3) Same as Religious Studies 373 and African and African-American Studies 373.

400 Readings in Anthropology (1-6) Problem-oriented directed readings in anthropology. Prereq: Anthropology majors with senior standing or consent of instructor. May be repeated. Maximum 6 hours.

410 Principles of Cultural Anthropology (3) Exploration and illustration of major concepts, theories, and methods in cultural anthropology, with application to analysis of specific ethnographies. Prereq: 130.

411 Linguistic Anthropology (3) Basic linguistic concepts applied to research in cultural anthropology, particularly investigation of relationships between language and culture. Prereq: 130 or Linguistics 200. (Same as Linguistics 411.)

412 Folklore in Anthropology (3) Introduction to anthropological study of folklore, using folklore and folk material from various tribal, peasant, and complex societies. Prereq: 130 or consent of instructor.

413 Dynamics of Culture (3) Definition and in-depth study of major forms of culture change, ranging from evolution and diffusion to religious revitalization and political revolt. Continuity and change in diverse cultural settings examined through use of archaeological, ethnohistoric, and contemporary cases. Prereq: 130 or consent of instructor.

414 Political Anthropology (3) Examination of the organization and dynamics of power and politics in both stateless and state-level societies. The role of symbols, rituals, and ideology in producing and reproducing power relations. The relationship between actors (individuals) and structures. The encapsulation of traditional political forms and systems within modern states. Prereq: 130 or consent of instructor. Writing-emphasis course.

416 Applied Anthropology (3) Introduction to principles, practice and ethics of anthropology applied to practical problems in non-academic settings. Overview of career opportunities in various domains of applied anthropology. Prereq: 130 or consent of instructor.

430 Fieldwork in Archaeology (3) Practice in the use of archaeological data recovery and analytical techniques. Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

431 Ethnographic Research (3) Conceptual and practical exploration of methods and techniques of field cultural anthropology. Prereq: 130 or consent of instructor.

435 Historical Archaeology Laboratory (3) Laboratory procedures for the processing, identification, and interpretation of artifacts from historical sites. Artificial 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 interaction between ecosystems and present day cultures and their environments. Topics include ecological theory, methods of analysis, and review of selected case studies. 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 of 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 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, 130, 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 Zooarchaeology (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 archaeology and interpretation of archaeological remains on historic urban sites in the United States. Course content will include lectures and field and laboratory research on urban sites in East Tennessee. Prereq: 361 recommended.

480 Human Osteology (4) Intensive study of the human skeleton. Prereq: 110 or consent of instructor. 3 hours and 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: 110 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 or 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)

211-222 Intermediate Modern Arabic I, II (5,5) Same as Asian Studies 211-222.

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

ARCHITECTURE (133)

101 Introduction to the Built Environment (3) Scope and definition of the built environment in relation to contemporary society, building industry, and allied design professions. Architectural design as a creative process. Orientation to courses and programs of the school. Coreq: 172.

102 Visual Design Theory (2) Principles of visual design, addressing form and space. Exploration of visual ideas through analysis. Introduction to terminology and vocabulary. Coreq: 172.
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 phenomena. 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.

122 Drawing and Abstraction (2) Exploration of drawing as a means of visual thinking and method of communication, addressing process of abstraction and transformation inherent in drawing. Exploration of different media and techniques of representation. Drawings based on observation, abstraction, and transformation. Coreq: 172.


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 studios).

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. Constructional and aesthetic changes 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.

213 History and Theory of Contemporary Architecture (3) Architectural thought in design practice in late twentieth century. Examples of contemporary works and review of theoretical issues. Prereq: 211 or 181.

231 Computer Applications in Design I (3) Introduction to computer systems, software, hardware, 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 and freehand and dimensional modeling and desktop publishing. Prereq: 172.

232 Introduction to Architectural Technology (3) Place of building technology in architectural design. Introduces concepts and theory of structures; building materials and construction; and environmental controls.


272 Architectural Design II (6) Studies in architectural space. The role of function, habituation, movement, structure and scale 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.

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 hour studios). 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.

334 Advanced Architectural Structures (3) Philosophy 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, foundations and simple statically determinate assemblies of buildings. Prereq: 180 and M. Arch Admission.

336 Structures in Architecture II (3) Continuation of analysis and design of simple structures of wood, steel and concrete. Introduction of 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.


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

344 Principles of Environmental Control II (3) Introduction to electrical design and wiring, lighting, acoustics and heat transfer. 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. Chemical Engineering in Europe, Asia, and the Americas. Examination of theoretical ideas, building forms, and urban patterns in cultural and historical context. Prereq: M. Arch admission or consent of instructor.

402 Architectural History/Theory II (3) Architectural History/Theory II (3) Survey of architectural history and theory from about 1600. Chemical Engineering through the present day. Examination of theoretical ideas, building forms, and urban patterns in cultural and historical context. Prereq: 401 and M. Arch admission or consent of instructor. Open to undergraduates with consent of instructor.

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. Basic urban design issues and exemplary design approaches examined through lectures, readings, essays, and sketch studies including historical and cultural change in urban form and design.

412 Non-Western and Indigenous Architecture (3) Building responsive to climate, material availability, 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 Mogul 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 decline 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 1900 to 1940.


420 American Architecture, 1840-1940 (3) Stylistic periods from the Gothic Revival through the Twentieth Century.

421 History of Landscape Architecture (3) Intellectual, societal, 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.

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.

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

434 Computer Applications in Design I (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.

435 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 principles, 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.

436 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 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.

463 Architectural Development (3) Principles and practice of the architect as a developer. Impact of economics, finance and urban policy on the design and development of real estate. Open only to students.


472 Architectural Design VI (6) Order and form in complex buildings developed to address programmatic, structural, energy and environmental issues. Prereq: 471.

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. Goals and concepts set forth. To be taken 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.

482 Self-directed Design Project (6) Student-selected project under faculty direction. Exploration of design hypothesis that informs the character of a substantial building design. Completed project will address issues of environment, structure, enclosure, use and ethical consideration of design appropriateness. Design is expected to stand up to rigorous scrutiny regarding strength of idea, economy of means, durability, validity for stipulated use, quality of cultural expression, and character of setting. Prereq: 480, satisfactory completion of a self-directed project proposal and 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 making and understanding the architectural of the city. Prereq: 471.


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.

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.


491 Foreign Study (1-15) Research and design projects conducted in various locations abroad. Prereq: 342. Coreq: 431.

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.

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 and Krakow (3) Analysis and sketch records 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.

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

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

300 Inter-area Portfolio Review (6) Review of prior studio work. 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 grading only.

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

482 M useology II: Exhibition Planning and Installation (3) Exhibition concept development and implementation. Exhibition design and installation techniques. Publicity, production, matting and framing, shipping and storage. Prereq: 481 or consent of instructor. (Same as Anthropology 482.)

483 M useology III: Field Projects (1-12) Special field projects including restoration, preservation, registration, and other related research on or off campus. Prereq: 481 and 482 and consent of instructor. May be repeated. Maximum 12 hours. (Same as Anthropology 483.)

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

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 6 hours.

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

ART CERAMICS (135)

191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. 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, 173, 162, 183 (choose two). Art Ceramics 221, Sculpture 241, all with a grade of C or better. Prereq/Coreq: Art 295. Coreq: Art Ceramics 222. Satisfactory/No credit only.

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

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

324 Ceramics: Advanced Handbuilding (4) Continued 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: 320.

429 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.

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 6 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.
Beginning Graphic Design I (3) Introduction to the elements and principles of graphic design including typography and 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.

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.

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

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

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.

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. Coreq: Art Design/Graphic 352. May be repeated. Satisfactory/No Credit grading only.

Intermediate Graphic Design I (3) Concept development and the study of graphic design elements including typography and imagery and their interrelationships within the graphic design layout. Prereq: Art 295. Coreq: Art Design/Graphic 350, 356.

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.

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.

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.

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

Computer Enhanced Graphic Design (3) Exploration of new technologies and their significance to graphic design. Prereq: 351, 356 with a grade of C or better and consent of instructor. May be repeated. Maximum 12 hours.

Graphic Design Center Practicum (3) Practical work experience in a student-managed, on-site studio. Prereq: 350 and consent of instructor. May be repeated. Maximum 12 hours.

Advanced Graphic Design (3) Theory and techniques of visual problem-solving as applied to advanced applications of graphic design. Prereq: 352 with a grade of C or better.

Graphic Design Seminar (3) Discussion of design and professional issues including politics, economics, and ethics for the graphic designer. Culminates in a student-initiated project. Prereq: 451 with a grade of C or better.

Advertising Illustration (3) Techniques and practices as applied to advertising illustration. Prereq: 254 and successful completion of any portfolio review.

Editorial Illustration (3) Media and techniques as applied to editorial illustration for books, magazines, and newspapers. Prereq: 254 and successful completion of any portfolio review.

Graphic Design Professional Seminar (3) Professional practices including client relationships, design management and business practices. Assembly, organization and editing of the professional portfolio. Prereq: or Coreq: 452.

Graphic Design Practicum (3-12) Practical work experience in the graphic design field. Only by pre-arrangement with the department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

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

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

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

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.

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.


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.

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.

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.
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.

416 Chinese Art of the 20th and 21st Centuries (3) Survey of Chinese art from the late nineteenth century through the present. Hong Kong, Taiwanese, and expatriate artists are also considered. 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 the Eastern Empire from the beginnings of Christian art to c. 1350. Mosaic and painting, sculpture and architecture. Writing-emphasis course. (Same as 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 courtyard art of late Middle Ages to Northern Renaissance. Jan van Eyck, Roger van der Weyden, and Durer; early printmakers. Writing-emphasis course. (Same as Medieval Studies 372.)

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

451 The Art of Italy, 1250-1450 (3) Development of exploration of naturalism. Revival of antiquity and development of theories of perspective in the Early Renaissance. Including Duccio, Giotto, Masaccio, Donatello, Botticelli. Writing-emphasis course. (Same as Medieval Studies 382.)

452 Art of Italy, 1475-1575 (3) Concentrated study of Leonardo da Vinci, Michelangelo, Titian, Raphael, Pontormo, and Giorgione. Writing-emphasis course.

453 Art of Southern Europe: 1575-1700 (3) Concentrated study of Caravaggio, Bernini, and Italian Baroque achievements 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: 172 and 173 (or their Honors equivalents), 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. (Same as African and African-American Studies 461.)

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

463 Arts of the African Diaspora (3) Examines the aesthetic, philosophical and religious patterns of the African descendants of Brazil, 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, basketry and pottery art forms. Writing-emphasis course. (Same as African and African-American Studies 463.)

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 Movement. Post-Impressionism in Europe. Investigation of the progressions in 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 M 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 grading 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 theory and practice of photography using large format view camera. Prereqs: 231, 311, and 331; and consent of instructor.


432 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. Prereqs: 235 and consent 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. Prereqs: 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) Continued exploration 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.

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

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

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

ART PAINTING (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.


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 concept. 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. Prereqs: 214 and 314 or consent of instructor. May be repeated. Maximum 8 hours. Total of 8 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 grading only.
315 Watercolor III (4) Individual expression with varied water-based media on paper. Prereq: 216 and 316 or consent of instructor. 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 grading only.

310 Lithography 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.

315 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 (4) 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.

ARTPRINTMAKING (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: Art 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: Art 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: Art 101.

269 Special Topics in Printmaking (3) Student or instructor-initiated course offered at convenience of department. Prereq: Art 101 and determined 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 Printmaking 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 grading 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 image development and personal concept. Prereq: 264 and 360, or consent of instructor. May be repeated. Maximum 8 hours.

462 Intaglio III (3-6) Exploration of individual projects through advanced color printing methods and combinations with other print media. Prereq: 362, 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.

469 Special Topics in Printmaking (3-6) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. 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.

ARTSCULPTURE (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.

240 Techniques and Tools (1) Introduction to the equipment in metal shop, wood shop, and foundry. Instruction includes shop safety, operation of tools, and handling of hazardous materials. All students must pass proficiency tests.

241 Beginning Sculpture (3) Introduction to the materials, concepts, technical processes, and history of sculpture. Materials include wood, plaster, steel and plastics. Prereq: Art 103.

242 Figuring the Body (3) Sculpture that involves the human figure, directly or indirecly. Prereq: Art 103, Art Sculpture 240, or Art Sculpture 241.

245 Metal Fabrication (3) Introduction to steel as a material for the creation of sculpture. Development of welding techniques, design of cold connections, and engineering of structural components. Prereq: Art 103, Art Sculpture 240, Art Sculpture 241.

246 Mixed Media Sculpture (3) Includes installation art, performance, and conceptual art. Contemporary issues and materials related to sculpture are examined through research and studio projects. Prereq: Art 103, Art Sculpture 240, or Art Sculpture 241.

249 Special Topics in Sculpture (3) Student initiated course offered at convenience of department. Prereq: Art 103, 105, and Art Sculpture 241 with a grade of C or better. May be repeated. Maximum 12 hours.

340 Sculpture Portfolio Review (0) Review of prior work in sculpture and development of new work. Successful completion required prior to registration for junior and senior courses. Prereq: Art 103, Art History 172, 173, 162, 183 (choose two); Sculpture 240, 241, 245, 246 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 Advanced Metal Fabrication (3) Advanced exploration of construction in steel and other metals through welding, design of cold connections, and engineering of structural components. Prereq: Art 103, Art Sculpture 240, 245, 246 and 340, or consent of instructor.

346 Advanced Mixed Media Sculpture (3-6) Advanced investigation into the sculptural possibilities of installation art, performance, and multimedia. Contemporary issues are examined through research and studio projects. Prereq: Art 103, Art Sculpture 241, 245, 246 and 340, or consent of instructor.

441 Advanced Sculpture (3-6) Individual development of sculptural problems and techniques. Students work independently while participating in group projects, critique, and discussion. Prereq: 6 hours of 300-level sculpture. May be repeated. Maximum 12 hours.

442 Senior Seminar (2) Investigation of professional practices and career opportunities in the field of sculpture. Includes portfolio development, preparation for exhibitions, and public commissions.

449 Special Topics in Sculpture (3) Student or instructor-initiated course offered at convenience of department. Prereq: Successful completion of any Portfolio Review (Art 200, 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.

ARTARROWMONTPHI 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.
COURSES OF INSTRUCTION

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.
151-152 Elementary Japanese I, II (5,5) Must be taken in sequence.
199 Chinese and Japanese Language and World Business (2) 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.
231-232 Intermediate Chinese I, II (5,2) 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.
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, drill, and composition practice with native speaker as well as reading and translation. Prereq: 251-252. Must be taken in sequence.
431 Readings in Chinese Literature (3) Prereq: Mastery of intermediate-level of Chinese or consent of instructor. May be repeated. Maximum 9 hours.
451 Readings in Japanese Literature (3) Prereq: Mastery of intermediate-level of 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 and 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.
322 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 in light of current knowledge and scientific reasoning; stellar birth, evolution and death as a chain of events; characteristics 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.
161-162 Introductory Astronomy with Laboratory (4,4) Survey course, with accompanying laboratory, treating the composition, structure and dynamics of the universe and introducing the basic vocabulary of astronomy and principles of scientific method. Components of the solar system including results from planetary exploration spacecraft; hypotheses and theories of the origin and evolution of the solar system in light of current knowledge and scientific reasoning; stellar birth, evolution, and death as a chain of events; characteristics of galaxies and of the beginning of the universe in light of modern astrophysics and particle physics. Principles for interpretation of astronomical observations are reinforced in laboratory. Must be taken in sequence. 3 hours lecture, 2 hour lab. Only one of three sequences 151-152, 161-162 or 217-218 may be taken for credit.
217-218 Honors: Introductory Astronomy (4,4) Introduction to astronomy and astrophysics with historical perspective in understanding the celestial universe, with emphasis on the laws of physics as they apply to the changing conceptions of the universe; structure of the solar system and celestial motions; evolution and properties of stars; galactic structure and models of the universe; observational technique and interpretation of underlying physical laws in accompanying lab. 3 hours lecture, 2 hours lab. Coreq: Mathematics 141 or 130 or equivalent. Credit given for only one sequence of lower division astronomy. This sequence satisfies the Arts and Sciences requirement for a natural science with laboratory.
411 Astrophysics (3) Development of analytical physical models of the galactic structure of the universe, stellar and interstellar matter, and planetary systems. Topical and interdisciplinary approach includes considerations of quasars, pulsars, black holes and current developments in the field. Acceptable for major credit in physics. Prereq: Physics 125 or 138 or 222 or 232 and consent of instructor.
490 Special Topics in Astronomy (1-3) Topics of current interest in Astronomy and Astrophysics. May be repeated for credit with consent of department. Maximum 9 hours.

AUDIOLOGY AND SPEECH PATHOLOGY (160)
300 Introduction to Communication Disorders (3) Nature, etiology, and incidence of speech, hearing and language disorders.
302 Acoustics and Perception (3) Basic acoustics. Introduction to psychoacoustics and speech perception.
305 Phonetics (3) Basic phonetics including recognition and production of spoken English sounds with analysis of their formation; phonetic transcription of speech; phonetic aspects of dialect variation.
306 Anatomy and Physiology of Speech (3) Anatomy, physiology and embryological development of the speech production mechanism. Prereq: 305.
320 Speech and Language Development (3) Speech and language development in the normal child.
431 Stuttering (3) Nature, appraisal and treatment. Prereq: 300 or consent of instructor.
433 Observation of Clinical Practice (1) Prereq: 320 or consent of instructor.
434 Clinical Practice in Speech-Language Pathology II (1-4) Prereq: 433 and consent of instructor. Enrollment for fewer than 2 semester hours must have prior departmental approval. May be repeated. Maximum 4 hours.
435 Introduction to Speech Sound Disorders (3) Etiology, diagnosis, and treatment of articulatory and phonological disorders. Prereq: 300, 305 or consent of instructor.
445 Clinical Practice in Audiology (1-4) Prereq: 473 and 494. May be repeated. Maximum 6 hours.
455 Problems in Speech Pathology (1-3) Prereq: Consent of instructor.
473 Introduction to Audiology Assessment (3) Basic principles of clinical audiometry; pure tone, speech, masking and overview of special audiological tests. Prereq: 303.
475 Appraisal of Speech and Language Disorders (3) Diagnostic procedures for children and adults with speech and language problems including observation and practice with diagnostic tests. Prereq: 300, consent of instructor and senior standing.
491 Foreign Study (1-15)
492 Off-Campus Study (1-15)
493 Independent Study (1-15)
494 Aural Habilitation/Rehabilitation of the Hearing Impaired (3) Introduction to psychosocial aspects, amplification components/characteristics, assistive devices, speech acoustics, speech perception, speechreading, parent-infant, preschool school years of children, communication impairments/handicaps/remediation of adults, effects of aging/remediation on the elderly, and case studies. Prereq: 305 and 473, or equivalents or consent of instructor.
499 Senior Seminar in Communication Sciences and Disorders (3) Capstone Experience: A taped emphasis course exploring the forces shaping the profession of communication disorders in the past, present and future. Prereq: Consent of instructor and senior standing.
230 Human Physiology (5) Fundamentals of human physiology, primarily from the perspective of cellular and organ-system interactions. Credit may not be applied toward BCMB major. Prereq or coreq: College chemistry for four hours and one semester of college biology. 4 hours and one lab. Coreq: Biology 140. Coreq: Organic chemistry. Recommended prereq: Physics 231-232.

242 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. 12 hours. Prereq: Coreq: 410, 411.

310 Physiological Chemistry (4) Biochemical principles underlying physiological events in animals. Metabolism of carbohydrates, lipids, proteins, and nucleic acids. Role of vitamins and minerals as coenzyme and prosthetic groups. Action of drugs and hormones. Prereq: Chemistry 100-110 or 120-130. Biology 130-40 or BCMB 230. Not available for credit if student received for BCMB 401 or 410 or 420. Credit cannot be counted toward BCMB concentration. (Same as Nutrition 310.)

320 Physiology of Reproduction and Lactation (3) (Same as Animal Science 320.)

330 Mechanisms of Development (3) A survey course on cellular and molecular basis of embryonic development; differentiation via transcription, RNA processing, and translation; sex determination in humans. Intended for Biology majors in BCMB concentration, but also open to Biology majors. Prereq: Biology 140. Coreq: Biology 340 or consent of instructor.

331 Mechanisms of Development Laboratory (2) Coreq: 330. 2 labs.

401-402 Biochemistry-Molecular Biology I, II (4,4) A two-course sequence providing in-depth coverage of biochemistry and molecular biology, intended for Biology majors concentrating in BCMB, but also open to Biology majors in other concentrations. First semester covers amino acid structure and chemistry, protein folding, enzyme behavior and function, reaction mechanisms, catabolism and energy transfer, synthetic metabolism including photosynthesis, and protein transport. Second semester covers structure of DNA and RNA, experimental methods of analyzing nucleic acids, mechanism of replication, mechanisms of DNA repair, repair and recombination, chromosome structure and function, regulation of gene expression, genome structure and genomics, and mechanisms of biological regulation. Prerequisites: BCMB 240. Biology 350-360-369.


405-06 Minicourse in BCMB (2,2) Select advanced topics in biochemistry, cell biology, genetics, and molecular biology, or developmental biology concentrated in time and subject matter. Consult departmental listing for topics offered. Prereq: As announced. May be repeated. Maximum 4 hrs may apply toward BCMB major.

409 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 economic impacts and moral and ethical implications. An oral presentation and a referenced library-research essay are required. A capstone course. Writing-emphasis course.

410 Cellular and Comparative Biochemistry (4) Electrolyte behavior, chemistry and structure of body fluids; 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 140-141. 4 hours. Not available for credit if credit has previously been received for BCMB 401. Credit may not be applied toward BCMB concentration.

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, signal transduction, cell regulation, mitosis 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, 130; Biology 140.

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

419 Cellular and Comparative Biochemistry Laboratory (2) Experiments with enzymes, nucleic acids, and model organisms. Chromatography, kinematics, hybridization, sequencing, and immunological methods. Prereq or coreq: 401 or 410.

420 Advanced Topics in BCMB (3) Selected Topics of current research interest, e.g., allosteric theory and control of protein function, immunochemistry, regulation of gene expression, bioenergetics, etc. Emphasis on original literature and the experimental basis of current knowledge. Historical background, societal impact, ethical and moral implications, and future development of technologies. Written reports required. Prereq: 410. Writing-emphasis course.

421 Cell and Tissue Structure and Function (4) Study of animal cells and tissues at light and electron micro scope 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 using modern cell biology and computer technology. Enrollment modules include techniques used in cell isolation, purification, cell culture, cloning, and fluorescence microscopy. Prereq or coreq: 401 or 410.


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. 12 hours. Prereq: Coreq: 410, 411.

467-481 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; interactions of light with biological molecules; optical and magnetic spectroscopy; light scattering; case studies of selected macromolecules. Prereq: Calculus, Organic Chemistry, General Biology or consent of instructor. (Same as Chemistry 471-481.)

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 only.

493 Independent Study (1-3) Independent study under the direction of a faculty member. Credit will be awarded toward Biology minors. Prereq: Biology 140 or consent of instructor.

BIOLOGY (190)

101-102 Humankind in the Biotic World (4,4) Introduction to the principles of biology from the perspective of the impacts 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 and metabolism, genetics and evolution, genetic and ecological principles, population biology, and the human cell. 102 focuses on the diversity of the Earth’s biota and the interdependence among components. Topics include: surveys of biodiversity from bacteria to higher plants and animals, genetics and evolutionary processes, population biology, ecology, ecosystems, 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 multicellularity, 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 construction, fossils, and the major plant and animal groups. Writing and analysis of lab activities required. 3 hours lecture, 1 hour lab each week. Credit not available for students with credit for both 101 and 102.

140 Organization and Function of the Cell (4) Topics include: basic organic chemistry and biomolecules, 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 titrating and analysis, as well as introductory molecular methods for analysis of cell components such as electrophoresis and centrifugation. Prereq: 130. Biology 120; Coreq: Chemistry 130.

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

240 General Genetics (4) Classical and modern principles of heredity. Topics include meiosis and transmission genetics; molecular genetics and gene expression; population and evolutionary genetics. Laboratories will alternate with problem-solving sessions 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 Botany 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. 1 hour lecture, 1 discussion field, problem or computer simulations. A working knowledge of college algebra is required. Prereq: 130-140 or Botany 110-120; Chemistry 120-130.

307-308 Honors Colloquy 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 sophomores, juniors and seniors; required of Threshold Biology Students. Prereq: 8 hours of 200 or above, admission to an honors program or permission of the instructor. Satisfactory/No Credit grading only. May be repeated.

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

398 Honors Practicum in Biological Research (3-5) Rotation through 3-5 modules of the Biological Sciences: BCMB. Intensive and elective experiences in participating laboratories. Required of (but not limited to) Threshold Biology Students. Prereq: 8 hours of 200 or above and 397. Permission of instructor required.
401 Senior Thesis (3-12) Required research experience of Threshold Biology Scholars. Students design research projects, complete research data acquisition, organize thesis documents, and prepare presentations. May be repeated. Maximum of 12 hours. Prereq: 394-395.

**BIO MEDICAL ENGINEERING**

See Engineering Biomedical.

**BIO SYSTEMS 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 formal design teams, assist in completing design tasks, 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 hour lab.

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

221 Mass and Energy in Biosystems (3) Introduction to thermodynamic concepts for biological systems (energy, mass and energy balances, processes and cycles); psychrometrics and psychrometric processes; biological systems and the biosphere. Prereq: Chemistry 120. Engineering Fundamentals 102. 2 hours and 1 lab.

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

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 proposals will include extensive documentation and preliminary analyses. Prereq: senior standing and at least three of 411, 421, 431, 441, 451, or consent of instructor.

402 Biosystems Engineering Design II (6) Culmination of capstone design sequence. Intensive design experience on project chosen and approved in Biosystems Engineering 401. Analysis, construction, testing, evaluation and reporting required. Technical lectures on statistics, engineering software, and technical issues relevant to the chosen design project. Weekly oral and written reports. Submission of design to external engineering design competition or display engineering design. Prereq: 401. 2 hour lecture, 2 hour recitation (weekly project reports) and 4 hour lab.

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

421 Natural Resource Engineering (3) Introduction to the hydrologic cycle: how water moves through and interacts with the environment through such processes as erosion and contaminant transport. Examining those impacts through estimation and measurement, and controlling the impacts through engineering design. Specific designs will include waterways, erosion and sediment control structures, waste management systems, irrigation systems, and hydrologic monitoring systems. Prereq: Environmental and Soil Sciences 210, Civil and Environmental Engineering 390 or Aerospace Engineering 341. Coreq: 321. 2 hours and 1 lab.

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. Coreq: 321. 2 hours and 1 lab.

441 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; animal growth systems; biotechnological applications. Prereq: Mathematics 231; Coreq: 321. 2 hours and 1 lab.

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

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

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

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

**BIO SYSTEMS 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.

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

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. Topics covered will include GIS software and concepts, GPS receivers, data acquisition, and spatial analysis of data to solve problems. Case studies in agricultural demographics, precision agriculture, pasture management, water quality, watershed analysis will be used to provide hands-on experience with these emerging technologies. Prereq: Agriculture and Natural Resources 290 or equivalent.

414 CAD Applications to Biosystems Engineering Technology (3) Computer Aided Drafting (CAD) applications in agriculture and environmental science. Essentials of CAD software to create drawings of components, systems, flow charts, and process diagrams. Applications in mechanical, structural, and biosystems. 2D applications with limited exposure to 3D applications. 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.

422 Food and Process Engineering Technology (3) Application of basic engineering principles to agricultural and food processes. Fluid handling, drying, evaporation, thermal processing, heating and cooling, refrigeration systems, and materials handling. Prereq: Physics 101 or 221. 2 hours and 1 lab.

432 Agricultural Machinery and Tractors (3) Functions, selection, matching, and management of agricultural machinery systems. Tractor power ratings, engine and transmission systems, hydraulic systems, hitching, and ballasting. Field and material handling; farm machinery 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 processes, off-road machinery safety considerations, and operator ergonomics. Prereq: Mathematics 123 or 125 or consent of instructor. 2 hours and 1 lab.

434 Production Monitoring and Automation (3) Precision technologies for monitoring and control of agricultural systems. Applications include: yield monitoring; variable rate management systems for planters, sprayers, soil applied nutrients, water management, crop health, and pest pressure; electronic information transfer; and GPS-based vehicle guidance. Prereq: 326. Coreq: 432. 2 hours and 1 lab.

442 Agricultural Waste Management and Pollution Control (3) Waste renovation fundamentals; characteristics of animal manure, techniques for collecting, transporting, and utilizing livestock waste. Prereq: Mathematics 123 or 125 or equivalent. 2 hours and 1 lab.

452 Small Internal Combustion Engines (3) Theory, concepts and mechanics of small internal combustion engines; theoretical cycles, selection, operation, adjustment, troubleshooting and repair of small internal engines. Prereq: Mathematics 123 or 125 or consent of instructor. 2 hours and 1 lab.

462 Agricultural Chemical Application Technology (3) Equipment for application of liquid, solid, and gaseous agricultural chemicals; system components; operational characteristics; calibration; selection and management; safety considerations; materials handling and disposal methods. Prereq: Mathematics 123 or 125 or consent of instructor. 2 hours and 1 lab.

474 Environmental Instrumentation and Monitoring (3) Equipment and techniques commonly used to measure all aspects of hydrologic cycle: precipitation, runoff, streamflow, and subsurface water movement. Sampling of all flows for contaminants. Design of monitoring systems. Analysis of data. Prereq: Environmental and Soil Sciences 324, Statistics 201, Mathematics 152, or consent of instructor. (Students cannot receive credit for both 474 and 574.) 2 hours and 1 lab.

**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); survey of plant kingdom (bacteria, algae, fungi, mosses, ferns, conifers, and flowering plants). 120-Plant growth, anatomy, growth regulation; uptake and transport; origin of life and mechanism of evolution; ecology, importance to humans and environmental concerns. Students receiving credit for both 110-120 may not receive credit for either Biology 130-140 or Biology 101-102.

305 Socio-Economic Impact of Plants (3) Significance of plants in origin and development of human cultures, evolution of cultivated plants, and role of plants in present civilization. Geographical field trips.

306 Genetics and Society (3) Introduction to genetics, anthropology 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 (monera, algae, fungi, and bryophytes) and vascular plants (ferns, fern allies, gymnosperms, and flowering plants). Prereq: 110-120 or Biology 130-140 or equivalent.

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, elements of metabolic processes, effects of age, light, natural rhythms, temperature, and other environmental factors. Lecture and lab. Prereq. One year of general chemistry and one year biological science.

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.
371 Undergraduate Seminar (1) Principles and practice of preparing and delivering a seminar presentation, usually focused on a current topic in plant biology. Junior or senior standing recommended. May be repeated. Maximum 2 hours.

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

401 Field Studies in Botany: (Specific Topic to be announced) (1-3) Field experience and taxonomic observations, lab work, and field studies. Specific topics will vary and may include: Bryology, Lichenology, Heredity, Agrostology, Mycology, Phycology, Aquatic Vascular plants, Santheriology, 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) Instructions 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, introduction of DNA and RNA, intron/exon hybridization, and preparation of plasmids. PCR amplification of specific sequences, DNA sequencing and transformation. Prereq: Biology 140 and 240 with grade of A or B and consent of instructor.

412 Plant Anatomy (3) Cells, tissues and organs; their development in vegetative and reproductive structures of vascular plants—emphasis on seed plants. Prereq: 110-120 or Biology 130-140 or equivalent.

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

431 Plant Ecology (3) Interactions between individuals, species, communities and their environment. 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).

441-442 Undergraduate Research Participation (1-2,1-2) Experience in active research projects under supervision of staff members. Prereq: Junior or senior standing, minimum grade of 3.0, and 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 maintenance of cultures. Lecture and lab. Prereq: 110-120 or Biology 130-140 or equivalent and Chemistry 120-130 or equivalent. Recommended: 310, 321, 412; Microbiology 310 or 319, Ornamental Horticulture and Landscape Design 330.

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, speciation, population, competition, niche, experimental ecology, 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.)

BUSINESS ADMINISTRATION (205)

100 Approaches to the College of Business Administration (1) Integration into the College of Business Administration with emphasis on academic advising, major exploration, career planning, University resources and services, and reinforcement of academic survival skills such as time management and study skills. Satisfactory/No Credit grading only.

101 Basic Business Applications (1) An online course with GTA consultation in which students learn 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 201 or equivalent has been completed. Satisfactory/No Credit grading only.


320 Business Career Placement (1) Exploration of career opportunities in business. Process of making the career decision, preparing for and conducting a job campaign. Using the Placement Office. Satisfactory/No Credit grading only. Prereq: Satisfactory progression to upper-division level in Business or Liberal Arts Business minor.

331 CBM I: Supply Chain Management (2) Coordinating the end-to-end relationships between supply chain members, from inputs to delivery of products/services. Understanding impact of supply and demand 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: 332.

332 CBM II: 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: 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 designing process 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: 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 junior standing. Coreq: BA 341.

351 CBM III: 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 market 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. Coreq: 352.

352 CBM III: Organizational Behavior (1) Behavioral processes in organizations; motivation, leadership, decision making, communication; behavioral consequences; group behavior, informal organizations, organizational structure, conflict, politics, change and development. Prereq: 331-332, 341-342. Must be admitted to a business major in the College of Business Administration and be of junior standing. Coreq: 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, regulation, trade policy, technological change, institutional and cultural systems. Emphasis on relationship between theoretical models and actual problems encountered in the conduct of business. Prereq: 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, 332 and 341, Finance 301, 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 Legal Environment of Business (3) Survey of legal and ethical topics affecting business. Coverage includes legal and business ethics; dispute resolution mechanisms; and substantive and procedural law of regulation, torts, contracts, property, intellectual property, business associations, and employer/employee relations. Prereq: Junior standing. (Same as Legal Studies 301.)

401 Law of Business Organizations and Commercial Transactions (3) Introduction to legal implications of basic business transactions including contracts, property, negotiable instruments, secured transactions, bankruptcy, suretyship, insurance, and legal liability. Fundamentals of business law required for professional examination preparation (e.g. CPA Exam). Major writing requirement. Prereq. 301.

CHEMICAL ENGINEERING

See Engineering Chemical.

CHEMISTRY (235)

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

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

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

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

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

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.
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 formulating 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.

230 Inorganic Chemistry (3) Periodicity, valence, bonding, and the descriptive chemistry of the elements; coordination compounds; nuclear chemistry; transition elements, inner transition elements. 2 hours and 1 lab. Prereq: 130 or 139.

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.

301 Industry/Laboratory Internship (3) Supervised by industry/laboratory technical staff at an approved facility. Consists of a full-time “hands-on” individual assignment for entire semester as member of a theoretical or experimental team. Credits may not be applied toward a major or minor in chemistry. May not be repeated. Prereq: 130 or 138 and consent of department head. Satisfactory/No Credit grading only.

310 Analytical Chemistry (3) Principles and practices of quantitative measurements in chemical systems. Acid-base, complexometric, and redox equilibria; applications of titrimetric analysis; potentiometry; elementary spectrophotometry; chemical separations including chromatography, ion exchange, and solvent extraction. Prereq: 130 or 138.

319 Analytical Chemistry Laboratory (1) Experiments on topics covered in 310. Coreq: 310.

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


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

369 Organic Chemistry Laboratory (2) Experiments on topics discussed in 350-60. Coreq. 360. 1 hour lecture and 4-hour lab.

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.

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 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.

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

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

408 Honors Research in Chemistry (3) Advanced students work with faculty on research projects requiring knowledge and skills acquired in chemistry curriculum. As Honors Theses is written and is defended orally before a faculty committee. Prereq: 400.

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.

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 BS Chemistry students on consent of instructor.


471-481 Biophysical Chemistry (3,3) (Same as Biochemistry and Cellular and Molecular Biology 471-481.)

473-483 Physical Chemistry (3,3) Students may not receive credit for both 471 and 473 nor for both 481 and 483. 473—Properties of gases, all phases of matter; the 471—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, 136 or 138 or 222 or 231, and 241 or 247.

479-489 Physical Chemistry Laboratory (2,2) Experiments on topics discussed in 471. 481 or 473—483. Prereq or Coreq: Corresponding courses 471 or 473 for 479 and 481 or 483 for 489. 1 lab.

490 Introductory Polymer Chemistry (3) Fundamental principles stressing the role of chemistry in the interdisciplinary field of polymer science. Relation of molecular structure to bulk properties of polymers. Prereq: 360. Prereq or coreq: 471 or 473.

CHILD AND FAMILY STUDIES (245)

102 Microcomputer Applications (3) (Same as RCS 102; HRA 102; Nutrition 102).

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. Satisfactory/No Credit grading only.

210 Human Development (3) Conception through adulthood in various social/ecological contexts; interrelationships among various aspects of development: 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 and nonnormative development. Includes observation.

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

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

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

320 Parenting (3) Factors in contemporary American families impacting on parent-child relations 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 goals, resource use, information systems, constraints within families. Observation and analysis of diverse family practices. Prereq: 220 or consent of instructor.

350 Early Childhood Education I: Environments for Children (4) Classroom management, behavior guidance, 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, admission to the major or consent of instructor.

351 Early Childhood Education II: Curricula and Program Development for Young Children (4) Planning effective early learning programs for young children relating knowledge of children’s growth and development to appropriate experiences in art, music, recreation, media, physical knowledge, planning, implementing, evaluating, and 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. Pre or Coreq: 351 or consent of instructor.

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 communication, 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; emerging 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 Speech 320 or consent of instructor. (Same as Speech Communication 430.)

431 Family Life and Parent Education (3) Emphasis on skills required to develop family life education programs in community settings. Overview of current approaches to the process of 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 Chemical Engineering 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, and 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 life stresses, examining children’s coping strategies, and designing appropriate intervention techniques and learning environments. Prereq: Admission to the Child Development major or the Early Childhood Education licensure program or by consent of instructor.

460 Directed Study in Child and Family Studies (1-3) Individual learning experience arranged for students requiring 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. Satisfactory/No Credit grading only. F and Sp student teaching begins on first day of registration and ends on last day of final examination period (student teaching follows the CDL calendar 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 experiences 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. Satisfactory/No Credit grading only.

480 Internship in Family Studies (9) Supervised experiences in community-based family life programs. Coreq or Prereq: Completion of Family Studies core, completion of the Instructional Pod and Family and Community Service Pod, including 405 and Human Services 380. Satisfactory/No Credit grading only.

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

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

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

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.)

331-332 Advanced Chinese I,II (4,4) (Same as Asian Languages 331-332.)

431 Readings in Chinese Literature (3) (Same as Asian Languages 431.)

CINEMA STUDIES (251)

235 Introduction to Cinematography as Art (3) (Same as Art Media Arts 235.)

236 Introduction to Video Art (3) (Same as Art Media Arts 236.)

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

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

323 German Film (3) (Same as German 323.)

325 Russian Film (3) (Same as Russian 325.)

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

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

420 French Cinema (3) (Same as French 420.)

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

433 Modern Art and Film (3) (Same as Art Media Arts 433.)

434 Hispanic Culture Through Film (3) (Same as Spanish 434.)

435 Cinematography as Art (3) (Same as Art Media Arts 435.)

436 Video as Art (3) (Same as Art Media Arts 436.)

465 Latin American Film and Culture (3) (Same as Latin-American Studies 465 and Spanish 465.)

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

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

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

CIVIL ENGINEERING See Engineering Civil.

CLASSICS (257)

201 Introduction to Classical Civilization (3) Introductory survey of civilization of ancient Greece and Rome. Includes aspects of history, literature, art and archaeology, philosophy and religion. Writing-emphasis course.

221 Early Greek Mythology (3) Archaic Greek religion through comprehensive study of Greek myths with emphasis on how they reflect the early Greek vision of the universe and humanity’s place in it. Origins and development of Greek myths and the rise of organized religion, from Bronze Age to about 450 B.C. Readings include Hesiod and Aeschylus. Writing-emphasis course.

222 Classical Greek and Roman Mythology (3) Use of myth in literature, history, religion and philosophy of Greece and Rome from about 450 B.C. to about 350 A.D. Two foci are the latter half of the fifth century B.C. and the last quarter of the first century B.C. Includes oriental intrusions into Greece and Rome, including early Christianity. Readings include Sophocles, Euripides, Roman poetry, and modern scholarship. Writing-emphasis course.

232 Archaeology and Art of Ancient Greece (3) Survey of Greek archaeology from prehistoric times to the Roman period (ca. 3000-100 B.C.). For prehistoric times emphasis on architecture and artifacts used to recreate the culture of the Minoan and Mycenaean civilizations and that of the following Dark Age. For Archaic, Classical, and Hellenistic periods emphasis on development of architecture, sculpture, and vase painting. Includes minor arts and the relationship between archaeology and art. Writing-emphasis course.

233 Archaeology and Art of Etruria and Rome (3) Survey of the archaeology of the Italian peninsula and the Roman World from prehistoric times to the fall of the Roman Empire (1000 B.C.-500 A.D.) Reconstruction of the Etruscan culture from tombs, paintings, and artifacts, development of Roman architecture, and urban planning in Rome and the provinces. Writing-emphasis course.

253 Greek and Roman Literature in English Translation (3) Major literature of ancient Greece and Rome from Homer to Tacitus. Writing-emphasis course.

273 Medical and Scientific Terminology (3) Greek and Latin roots from which medical and scientific terminology is derived. Extensive practice in analysis of terms. Practice in use of Latin nomenclature.

310 The Ancient World: Greece (3) Development of Athenian democracy: its successes and failures; Polis crisis of the fourth century B.C.; emergence of hellenistic civilization. (Same as History 310.)

311 The Ancient World: Rome (3) (Same as History 311.)

331 Archaeology of the Aegean Bronze Age and Early Greece (3) Includes Troy, the Cycladic Islands, the Greek mainland, Crete, and Cyprus ca. 3000-700 B.C. Rise and fall of the Minoan and Mycenaean civilizations and their effect on the Aegean World and Cyprus. Evidence for daily life, religion, trade, and foreign contacts. Architecture, wall paintings, and artifacts. Prereq: One of the following: 232, 381, ancient history (Ancient Near East or Ancient Greece), or consent of instructor. Writing-emphasis course.

334 Cities and Sanctuaries of the Greek and Roman World (3) Major cities and sanctuaries in Greece, the Greek Colonies, and the Roman Empire. Approach is archaeological, focusing on physical evidence—landscape, architecture and artifacts as well as descriptions of ancient authors. Cities include various types - planned and unplanned, seaports, caravan centers, government and commercial centers. The sanctuaries also vary in function including prophetic centers, athletic centers, theater centers, and healing centers. Writing-emphasis course.

362 Roman Law (3) This course covers the historical development of Roman law in the Classical period (50 B.C.-250 A.D.) with particular attention to the analysis of case-law in terms of contract, property, or delict. (Same as Legal Studies 362.)

381 Greek Civilization (3) Major aspects of ancient Greek civilization: religion, fine arts, political life, pan-Mediterranean relations, the prominence of Athens; the role of modern archaeology in interpretation; emphasis on the sixth and fifth centuries B.C. Writing-emphasis course.

382 Roman Civilization (3) Major aspects of ancient Roman civilization: political institutions, art and architecture, history, culture and daily life, emphasizing the late Republic and early Empire. Writing-emphasis course.

383 Women in the Greek and Roman World (3) The condition of women in the apparently male-dominated world of Classical Greece and Classical Rome. Evidence from literature, vase paintings, and other arts is examined from the age of Homer to the second century A.D. with emphasis on Athens in the fifth century B.C. and Roman Italy in the first and second centuries A.D. (Same as Women’s Studies 383.)

441 Special Topics in Classical Civilization (3) Topics in art, literature, religion, and society of Greece and Rome. May be repeated up to three times with consent of department.

461 Studies in Classical Archaeology (3) Variable content course offering subject matter not taught in an existing course, or concentration on one aspect of the existing survey. May be repeated. Maximum 9 hours. Prerequisites according to topic.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

COLLEGE SCHOLARS HONORS (509)

317-318 College Scholars Seminar (1,1) Sequence (in any order) limited to and required of all College Scholars each year. May be repeated. Maximum 8 hours. Satisfactory/No Credit grading only.
COMMUNICATION (259)

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

150 Communication in an Information Age (3) Overview of current and emerging communication systems including print, broadcast, multichannel video, telephony, and the Internet. Particular emphasis is given to the development of communication systems and their role in society.

300 Mass Communication Research Methods (3) Social science research methods, especially sample surveys, used by communication media. Applications to internal decision-making and to external communication in media. Prereq: Journalism 200, or Advertising 350, or Electronic Media 310 or 320, or Speech Communication 350, or consent of instructor. (Same as Legal Studies 300.)

400 Mass Communication Law and Ethics (3) Emphasis on legal issues directly affecting the mass media: libel, privacy, free press, free trial, judicial controls, governmental regulations. Also includes ethical standards and practices of the mass media in America. Prereq: Journalism 200, or Advertising 350, or Electronic Media 310 or 320, or Speech Communication 350, or consent of instructor. (Same as Legal Studies 400.)

450 On-Line Electronic Publishing (3) Cross-disciplinary approach to design and production of on-line publications. Emphasis on researching, planning, site content and design, and the economic, legal and ethical issues involved in online publishing. Prereq: Senior standing and consent of instructor.

COMPARATIVE LITERATURE (260)

202-203 Cross-Cultural Perspectives in World Literature (3,3) 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.

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

452 Modern Drama, 1880-1945 (3) (Same as English 452.)

454 Twentieth-Century International Novel (3) (Same as English 454.)

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

COMPARATIVE AND EXPERIMENTAL MEDICINE (262)

411 Undergraduate Research Participation (1-3) Experience in active biomedical research projects under supervision of faculty. Students in pre-medicine and other biology majors may conduct their own research projects within designated areas. Prereq: Junior or senior standing; prior consent of faculty member. May be repeated with consent. Maximum 9 hours. Satisfactory/No Credit grading only.

COMPUTER SCIENCE (266)

100 Introduction to Computers and Computing (3) Basic concepts of computer hardware and software. Introduction to computer systems and workstations. Networking and the Internet. The interdisciplinary science of computing. Does not satisfy any requirements for Computer Science major or minor. 2 hour lab required.

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, OI/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 include: sh, cat, grep/find/sort/tar/ed/sed, awk, perl, python, make, rcs, jgraf, gec/ccp/pex/countify. Prereq: 140 or consent of instructor. Satisfactory/No Credit grading only.

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 objects, formal specifications. Prereq: 140, 160, 311. 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.

365 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, analysis, and implementation of numerical algorithms for solving problems in science and engineering. Emphasis on program design, including data structures, computational complexity, 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 search, learning, expert systems, neural networks, pattern recognition and natural language -processing. Emphasis on faculty research. May be repeated. Maximum 9 hours. Prereq: Completion of core curriculum or consent of instructor.

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

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

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

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

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

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

493 Independent Study (1-15) Special project in area of student’s primary interest. Directed by Computer Science faculty, perhaps jointly with student’s faculty advisor. Intended for students with a specific project to pursue in conjunction with a faculty member. 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 of 6 hours may be applied to the major. Prereq: Consent of instructor.

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

COUNSELOR EDUCATION (255)

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. Satisfactory/No Credit grading only.

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 sophomore level and above. Letter grade only.

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

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


404S 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.

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 Counselor Education 410.)

431 Personality and Mental Health (3) Perspectives of mental health with applications to education and other social institutions. (Same as Educational Psychology 431.)

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

CULTURAL STUDIES IN EDUCATION (271)

400 Professional Studies: Teachers, School, and Society (2) Focus on roles and responsibilities of teachers, on how schools are organized and the relationship between the school and the broader society. Prereq: or Coreq: Educational Psychology 210. Prereq: Admission to Teacher Education.

DANCE (274)

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

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

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

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

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

240 Tap: Level I (2) Instruction and practice in elementary tap dance techniques. May be repeated. Maximum 4 hours.

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.

420 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 works 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 curricular development and presentation. Prereq: Pre-K-4 licensure program and admission to Teacher Education.

445 Early Childhood Education: Program Development and Teaching in Kindergarten (3) Curriculum planning, classroom organization and management 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, curriculum planning and development, and teaching approaches used 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. Satisfactory/No Credit grading only. May be repeated. Maximum 5 hours.

ECOLOGY AND EVOLUTIONARY BIOLOGY (278)

202-203 Ecology and Evolutionary Biology Colloquium (1,1) Weekly discussions of topics in general ecology, biogeography, and evolutionary biology including undergraduate research and career opportunities, for declared and potential departmental majors. Course familiarizes students with the contemporary research and with its applications and introduces them to departmental faculty and resources. Satisfactory/No Credit grading 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 Evolution and Ecological 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, diversity and functional anatomy of vertebrates. 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 adaptations to specific local environments. 2 hours and 2 labs.

370 Ethnology 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 supervision of faculty. 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 applications 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 Ecology and Evolutionary Biology and 400 or equivalent.

409 Perspectives in Ecology and Evolutionary Biology (3) Forefront considerations of ecology, behavior, and evolutionary biology. Emphasis on current developments for implications, including societal and economic impacts and moral and ethical implications. Writing-emphasis course. 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 science, nonscience, and non-scientifically successful 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 ethnology 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.)

ECONOMICS (283)

201 Introductory Economics: A Survey course (4) Theory of consumer 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, of production and costs, of price and behavior of firms in perfectly competitive, monopolistic and imperfectly competitive markets, input prices, income distribution, welfare and general equilibrium. 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) Extension of economic principles to labor markets, public policy questions, demand and supply, theory of wage differentials, unemployment, unions in the private sector, investment in individuals, education and training, mobility. Prereq: 201.

351 Monetary Economics (3) Role of money in the economy, Federal Reserve System, evaluation of monetary policy, U.S. depository institutions and money supply process. 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.

381 Information Management for Economists (3) Introductory probability, statistics, and econometrics from an economic perspective, with emphasis on skills related to gathering, managing, processing, presenting, and interpreting economic data. Includes the use of statistical software in hands-on research projects. Considers common econometric problems such as multicollinearity, heteroscedasticity, and autocorrelation. Prereq: 201. Statistics 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 history. Origins and evolution of major doctrines: classical and neoclassical economics, economics of Keynes and his followers, principal developments of second half of 20th century. Major writing requirement. Prereq: 201 or equivalent and consent of instruction. Not available for graduate credit in History. (Same as History 415)

345 Interpreting in Educational Settings (4) Covers issues related to working with deaf and hard of hearing children in mainstream programs. Examines interpreter roles and responsibilities within the classroom setting. Practicum experiences.

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.

431-432 American Sign Language III and IV (3,3) Sequence stresses fluency of expression, vocabulary, and 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: 421 or consent of instructor. Prereq: for 432: 431 or consent of instructor.

440 Educational Interpreting Field Work (6) Practical field experience within approved and supervised mainstream settings. Develop specific interpreting skills. Provides a direct service experience in a community learning environment. For majors only. Prereq: progression to the major. Satisfactory/No Credit grading only.

EDUCATIONAL PSYCHOLOGY (310)

210 Psychoeducational 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.

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 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.

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

432 The Disadvantaged Student: Psychoeducational 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, emotional and health domains for both helping professionals and their clientele. Prereq: Introductory course in psychology or permission of instructor.

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

ELEMENTARY EDUCATION (322)

325 Teaching Science and Social Studies in Elementary and Middle Schools (3) Methods and materials for teaching science and social studies in elementary and middle schools. Teaching approaches common to both fields including inquiry, multisensory activities and group approaches. For BS Education students. Prereq: Admission to Teacher Education Program.

326 Teaching Language Arts/Reading 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). Includes methods and materials. For BS Education students only. Prereq: Admission to Teacher Education Program.

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.

356 Elementary and Middle School Teaching Laboratory Experience (1) 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 relationships and individual entities of the two fields. Not open to students with recent course or background in The Teaching of Elementary School Science and/or Social Studies. Prereq: Admission to Teacher Education Program.

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.

424 Studies in Elementary Education (1-3) Variable topics on teaching in Elementary Education K-3 and Skills (K-8). Prereq: Admission to Teacher Education Program. Coreq: 422.

429 Language Arts/Reading Instruction in Elementary and Middle Schools (3) Language and language development as applied to teaching of oracy (listening-speaking) and 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.

ENGIN EERING AEROSPACE (018)

201 Aerospace Seminar (1) An overview of aerospace engineering with lectures, laboratory demonstrations, and field trips. Aerospace history, aircraft and space flight fundamentals, propulsion techniques, wind tunnel testing, biomedical issues in aviation and space flight. Satisfactory/No Credit grading only. Prereq: Sophomore standing in Aerospace Engineering or consent of instructor.
341 Fluid Mechanics (3) 1 Introduction to fluid flow concepts; hydrostatics; development of mass, momentum, and energy conservation laws in integral and differential form; dimensional analysis and similitude; viscous laminar and turbulent flows in pipes; introduction to boundary layers. Prerequisites: Mechanical Engineering 231, Mathematics 241.

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 and flow measurements. Coreq: Mechanical Engineering 363. Prereq: 341, Electronic and Computer Engineering 301.

351 Compressible Flow (3) One-dimensional internal flow with shocks, friction and nonadiabatic conditions. Two-dimensional external flows. Prereq: 341, Mechanical Engineering 332.


401 Thesis (3) Problem investigation and report. Prereq: Senior standing.

422 Aerodynamics (3) Theory and design of aerodynamic bodies for desired characteristics. Potential flow theory, viscous effects, compressibility effects. Subsonic, transonic, and supersonic airfoils. Prereq: 351, 370.

424 Astronautics (3) Orbital mechanics, propulsion, atmospheric reentry of space vehicles including reentry thermal protection materials, human factors in space flight, the space environment and its effects. Prereq: 351, Coreq: Mechanical Engineering 344.

425 Propulsion (3) Principles of propulsion devices; turbojet, ram jet and rocket engines. Prereq: 351.


429 Aerospace System Design (4) Synthesis and design of a complete aerospace system. Participation in team design effort including final presentations and design report. Prereq: 422, 425, 426.

431 Mechanical Engineering/Aerospace Engineering Seminar (1) Topics related to engineering including ethics. Formal oral presentations by students on engineering topics. Prereq: Senior standing.

449 Aerospace Engineering Laboratory (3) Designing, conducting, and reporting results of experimental exercises. Test standards and specifications. Analysis of data and formation of conclusions. 3 hours lab per week. Prereq: 345, 347.

494-495 Selected Topics in Aerospace Engineering (1-4, 1-4) Problems and topics related to developments and practice in aerospace engineering. Prereq: Consent of instructor.

ENGINEERING CHEMICAL (226)


230 Introduction to Chemical Engineering Thermodynamics (3) Introduction to the laws of thermodynamics, state functions, and their conceptual basis. Ideal systems, the gas laws, Raoult’s law, and deviations from ideal behavior (fugacity and activity). Introduction to the principles of statistical mechanics and quantum mechanics. Prereq: Engineering Fundamentals 102, Chemistry 130. Coreq: 200, Mathematics 142.

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

250 Application of Chemical Engineering Thermodynamics (3) Basic concepts related to chemical engineering applications of thermodynamics; emphasis on flow processes, real gases and liquids, estimation of physical properties, phase equilibria of industrial mixtures, compressors, power cycles, and chemical reaction equilibria. Prereq: 200, 230.

301 Chemical Engineering Data Analysis (3) Analysis of experimental data; identification of system extremes; statistical properties of samples; empirical modeling of processes; statistical process control; optimization techniques. Prereq: Mathematics 200, 142.


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


380 Seminar (1) Presentation and discussion of topics in the practice of chemical engineering. Satisfactory/No Credit grading only.

394 Chemical Engineering Co-op (1) Co-op experiences in Chemical Engineering. Technical report writing and presentations. Prereq: Permission of instructor. May be repeated.


407 Honors Seminar (1) Presentations and discussions on topics of importance to chemical engineering. Prereq: Consent of instructor. Satisfactory/No Credit grading only. May be repeated once.

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

410 Chemical Engineering Laboratory I (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) Introduction to computer solution of chemical engineering problems. Primary focus on the application of personal computer systems. 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.


465 Biomedical Engineering Design II (4) Design of complete biomedical device: documentation includes complete specification, design calculations, preparation of working drawings, and cost analysis. Written and oral reports. Prereq: 455.


494-495 Special Project in Biomedical Engineering (1-3, 1-3) Problems related to recent developments and practice. May be repeated once for credit. Prereq: junior or senior standing, consent of instructor.
47 Honors: Engineering Internship in Process Control (4) Selected students work in small groups on industrial problems in processes dynamics and control. Directed by faculty and engineers from host company. Prereq: 360 and consent of instructor.

47 Honors: Applied Process Automation Laboratory (3) Interfacing flexible batch continuous processes to automation systems. Top down analysis with bottom up implementation, hierarchical structures and object oriented concepts are used to design automation solutions including human-machine-interfaces. Workstations with modern industrial equipment provide an interactive graphics and visualization environment. Prereq: 360 and consent of instructor.

48 Honors: Applied Process Automation Design Projects (3) Industrial programmable logic controllers (PLCs) and industrial automation and human-machine-interface (HMI) design software are used on workstations to develop automation solutions by small teams of students. Advanced control strategies, networking and internet issues. Prereq: 477 and consent on instructor.


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

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

485 Hydrocarbon Processing (3) Chemical and physical properties of selected petroleum and liquefied natural gas components; conversion of raw material into various fuels and selected chemical feedstocks. Prereq: 340. Chemistry 350.

488 Honors: Design Internship in Industrial Pollution Prevention (3) Selected students work in small groups to address the prevention of industrial pollution through improved process design. Directed by faculty and engineers from host company. May be substituted for 490 with departmental approval. Prereq: 480 and consent of instructor.


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

498 Honors Thesis (3) Research in problems related to recent developments in chemical engineering. Prereq: Consent of instructor.

ENGINEERING CIVIL (254)

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

210 Engineering Measurements (4) Menus through application of surveying techniques; theory of errors and their analysis; concepts of horizontal, vertical and angular measurements and control; construction surveys; route surveys through vertical and horizontal curves; and introduction to GIS and GPS. 3 hours, 1 lab. Prereq: Sophomore standing.

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

305 Professional Development II (1) Legal and ethical responsibilities, continuous improvement, career planning, and leadership. Prereq: 205.


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 applications of economic analysis. Design of transportation terminals, airports, parking, etc. Prereq: 210.

352 Transportation Engineering II (3) Introduction to design, construction, maintenance, and operation of various transportation modes, their guideways and terminals, primarily highway and railroads. Prereq: 351.

361 Structural Analysis II (3) Stress and strain in beams and columns; Mohr’s circle; influence lines; deflections and beams and trusses; analysis of indeterminate structures; moment distribution. Prereq: 261.

380 Water and Waste Treatment (3) Principles of unit operations employed in physical, chemical, and biological treatment of water, wastewater, and solid wastes. Prereq: Junior standing and 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. Prereq: 355 or Biosystems Engineering 243; Engineering Fundamentals 102; Nuclear Engineering 203.

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 and magnitude; groundwater flow. Prereq: 390 or consent of instructor.

400 Senior Design Project (3) Open-ended, comprehensive project emphasizing team approach to design process. Includes problem formulation, site planning, project management, drawings and specifications, cost estimating, and various project components typical of those faced by practicing civil engineers. Prereq: Must be taken during the term of graduation. 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. Prereq: Must be taken during the last 15 months 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. Prereq: Consent of instructor and department head. May be repeated.

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. Prereq: 321.

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

435 Foundation Engineering (3) Fundamentals of geotechnics applied to design and analysis of soil-structure systems; subsurface investigation; design of shallow and deep foundations on rock. Lateral earth pressure and retaining structures. Prereq: 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. Prereq: Senior standing and Statistics 251.

442 Construction Methods and Equipment (3) Fundamental operations in construction equipment selection and procurement; concrete and steel construction; and construction contracts and economics. Prereq: 330.

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

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

453 Airport/Railroad Planning and Design (3) Airport master planning and railroad engineering—planning, configuration, capacity, geometry, terminal layout and design. Railroad capacity, geometry and system layout and design. Prereq: 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; use of computer in structural analysis; building modeling and analysis. Prereq: 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. Prereq: 361.

472 Steel Design (3) Design of plate girders and composite beams; consideration of members subjected to combined stresses; design of a typical framed building including connections. Prereq: 473.

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

480 Water and Waste Transport (3) Theory and design of water distribution systems, and wastewater collection systems. Prereq: 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 quality, transport of pollutants, and control technologies including treatment and disposal. Prereq: 390 or Chemical Engineering 200 or Agricultural Engineering 243.

490 Water Resources Project Design (3) Development of multipurpose reservoir and dam design, design parameters, optimization, and hydraulic and hydrologic analysis; design of outlet works; earthen and gravity dam stability analyses; drains and filters; maintenance and operation principles; and dam safety concepts, including dam break analyses. Prereq: 390, 395.

495 Water Resources Development and Management (3) Institutional framework including: water law, evaluation procedures for comparing and selecting among water resources 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. Prereq: Senior standing.
ENGINEERING ELECTRICAL AND COMPUTER

206 Electrical Engineering Computations (4) Engineering problem solving and algorithm development by programming computers. Emphasis on software engineering, object-oriented design, building abstractions with procedures and data, and programming in a modern computer language. Includes Level 1 design projects which require laboratory work. Coreq: 255.


300 Circuits (5) Fundamental laws of circuit analysis. Ohm’s Law, Kirchoff’s current and voltage laws, conservation of current, conservation of independent and dependent voltage and current sources, resistance, conductance, capacitance and inductance, analyzed using mesh and nodal analysis, superposition and source transformations, and Norton’s and Thevenin’s Theorems. Steady-state analysis of DC and AC circuits. Complete solution for transient analysis for circuits with one and two storage elements. Complex frequency, sinusoidal forcing functions, and natural response. Resonance: general case, special cases in series and parallel circuits. Scaling: magnitude and frequency. Admittance, impedance and hybrid-parameters. Includes Level 1 design projects which require laboratory experiments. Prereq: All course work in the Freshman Engineering curriculum; grade of C or better in Mathematics 141, 142, 231 and Physics 231.

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


316 Signals and Systems II (3) Sampling theory, theory and application of Laplace transforms, feedback, root locus, gain and phase margin, theory and application of z Transforms, digital filters, discrete-time state variables. Prereq: 315.


335 Electronic Devices (4) Semiconductor physics, theory of p-n junctions; diodes, field-effect transistors, and bipolar transistors; modeling of diode and transistor devices; analysis and design of diode switching and rectifier circuits; basic transistor switching circuits and single stage amplifiers; electronic circuit simulation using SPICEChemical. Includes 1 credit laboratory work involving Level 1 design projects. Prereq: 300, Coreq: 315.

336 Electronic Circuits (3) Multistage transistor amplifier biasing; gain stages, and output stages. Frequency and transient response of open loop linear amplifiers; fundamentals of integrated circuits, operational amplifier applications in basic feedback configurations; basic transistor switching circuits. Includes laboratory experiments and design projects. Prereq: 315, 336.

341 Fields (3) Coulomb’s law, Gauss’ law, Ampere’s law, Maxwell’s equations for electrostatic and magnetostatic cases; Maxwell’s equations for dynamic case, dynamic potentials, uniform plane wave propagation. Transmission lines. Prereq: 300, Mathematics 241, and Physics 232.

342 Analog Communication Amplitude and Frequency Modulation (3) Probability and random variables, signal-to-noise ratio, transceiver models, link budget analysis, bandwidth and noise, modulation, frequency modulation, frequency spread. Includes Level 1 design projects which require laboratory experiments. Prereq: 315.

355 Computing System Fundamentals (3) Introduction to machine-level computer organization. Basic computer operations, Basic microprocessor and architectures; memory and memory structures; structured assembly language programming; intra- and inter-computer communication; O - systems; device drivers; multi- and distributed processor systems; issues in computer security. Includes Level 1 design projects which require laboratory work. Prereq: 206, 255.

395 Junior Seminar (1) Presentations and discussions related to professional development, including presentation skills, effective communication, and current topics in electrical engineering. Prereq: 300. Satisfactory/No Credit grading only.

400 Senior Design (5) A major design project that focuses the student’s attention on professional practice, accumulated background of curricular components, and recent developments in the student’s major discipline. The student will gain experience in all aspects of electrical engineering. Includes Level 3 design projects which require laboratory work. Prereq: 316, 325, 332, 342, 355.


ENG INEERING MATERIALS SCIENCE (638)

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

220 Selection and Use of Soft Goods Manufacture (3) Study of textile products for apparel and interior furnishings; emphasis on the selection of fibers, yarns, fabrics, finishes and their characteristics. Prereq: 221. 2 hours lecture, 1 lab. Prereq: Coreq: Mathematics 142 or higher.

290-391 Materials Seminar (0-1) Professionalism, ethical considerations, safety, patents, product liability, design, evaluation, and management of safety organizations and programs. Hazard recognition, analysis, control and risk assessment, systems safety and related techniques. Prereq: Senior standing.

403 Production Facilities Design and Material Handling (3) Design of production facilities including plant layout and analysis and planning for overall manufacturing, packaging and storage of materials. This includes office layout and service areas. Principles applicable to the design of facilities for such diverse groups as hospitals, banking, and industry. Prereq: 306.

404 Industrial Engineering Applications (2) To enhance and integrate the industrial engineering educational experience in preparing senior industrial engineering students for their transition to professional practice. Prereq: To be taken in student’s semester of graduation.


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 or consent of instructor.

422 Senior Problems Analysis (3) Current real-world problems will be drawn from local production and service organizations and presented by personnel from these organizations. Senior Industrial Engineering student teams will solve these real-world problems under the guidance of their instructor using industrial engineering methodology. These problems emphasize problem definitions, analysis, and presentation with considerations for engineering principles, experimental, and mathematical, ethical, social, economic, and other pertinent constraints. Prereq: To be taken in student’s semester of graduation.


440 Process Improvement Through Planned Experimentation (3) Review of industrial, continuous improvement, advanced statistical 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 fractional designs. Full factorial designs are compared to fractional designs to balance experimental efficiency with loss of information. Lab component utilizes statistical analysis software and simulation software to provide hands-on experience. 2 hours lecture, 1 lab. Prereq: 300.

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 (1-3,1-3) 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.

ENG INEERING MATERIALS SCIENCE (638)

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

220 Selection and Use of Soft Goods Manufacture (3) Study of textile products for apparel and interior furnishings; emphasis on the selection of fibers, yarns, fabrics, finishes and their characteristics. Prereq: 221. 2 hours lecture, 1 lab. Prereq: Coreq: Mathematics 142 or higher.

290-391 Materials Seminar (0-1) Professionalism, ethical considerations, safety, patents, product liability, field trips, industrial speakers, materials science in a global/societal context, teamwork, contemporary issues, life-long learning. May be repeated. Prereq: 201. 201 or 291 must be taken each semester by all Materials Science Engineering majors starting with the second year of residence.

300 Materials Laboratory Procedures (1) Thermometry, sample preparation for microscopic examination; word processing and graphics 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 in the various materials, including crystalline and non-crystalline forms; rubber elasticity, viscoelastic behavior, creep, time-temperature superposition in polymers; fatigue. Prereq: 201, 303, or consent of instructor.


320 Diffusion and Phase Transformations (4) Thermodynamics of phase equilibrium. Diffusion in solids; the diffusion equations, point defects, and atomic mechanisms of diffusion; equilibrium and non-equilibrium phase transformations. Prereq: 201, Chemistry 473.

340 Principles of Polymeric Materials (3) Synthesis and molecular structure of polymers; polymerization kinetics; molecular characterization; crystalline and glass transitions; crystallization kinetics; mechanical properties; rheology and processing. Prereq: 201.

360 Principles of Ceramic Materials (3) Characterization of ceramic materials as to their crystal structure, their mechanical, electrical, and optical properties. Ceramic fabrication processes from the initial green body fabrication through the firing stage. Prereq: 201
370 Materials Processing (3) Application of fundamentals of mass and energy balances, mechanics, heat and mass transfer, chemical thermodynamics and kinetics to the processing of materials and manufacturing of products. A wide range of materials (metals, ceramics, polymers, composites, bulk, fibers, films, coatings, and processes (casting, molding, extrusion, forging, powder processing, coating techniques, etc.) are studied as examples of processing technologies. Elementary ideas of process measurement and control. Prereq. 201, 320, Chem 200, or Chem 240, or equivalent.


402 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 models in various materials; yield criteria; brittle fracture; crazing; plastic strain constitutive equations, forming operations and limit criteria. Prereq: 301, Engineering Science 321, sophomore mathematics.

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

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

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

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

472 Fundamental Principles of Composite Materials (3) Physical principles basic to the design, manufacture and application of fiber reinforced polymers, metals and ceramics. Prereq. 302 or equivalent.

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

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


494 Special Project Laboratory (1-3) Group or individual investigation of problems related to materials science and engineering. May be repeated to a maximum of 6 credits. Prereq. 201 and consent of instructor.

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

ENGINEERING MECHANICAL(650)

231 Dynamics (3) Kinematics of rigid bodies; center of mass; kinetics of systems of particles; mass moments of inertia; kinetics of rigid bodies; Newton’s laws, work-energy, impulse-momentum. Prereq: Engineering Fundamentals 102, Mathematics 142.


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

332 Thermodynamics II (3) Properties of gases and mixtures; chemical reactions; equilibrium; compressible flow; applications to engineering problems. Prereq. 331. 344 Heat Transfer (3) Heat transfer by conduction, thermal radiation, free and forced convection. Prereq. 331, 391, Aerospace Engineering 341.

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

363 Mechanical Vibration (3) Free and forced vibrations of damped and undamped lumped parameter systems; energy methods; free vibration of continuous bodies. Prereq. 231, Mathematics 231.


391 Engineering Analysis (3) Numerical and analytical techniques are developed for problems arising in mechanical and aerospace engineering. Numberical methods address root finding, direct and indirect techniques for linear and nonlinear systems, interpolation, cubic splines, quadrature, numerical integration, ordinary and partial differential equations. Analytical methods include Fourier series, solutions to linear systems of differential equations and separation of variables. Computer projects are assigned for reinforcing classroom developments. Prereq: Engineering Fundamentals 201.

401 Thesis (3) Research and design problems in mechanical engineering with prior approval of instructor. Prereq: senior standing or consent of instructor.

402 Fundamentals of Engineering (1) The course reviews topics covered on the Fundamentals of Engineering exam. Letter grade only. Prereq: Senior standing in Engineering.


431 Seminar (1) Topics related to engineering including ethics. Formal oral presentation by students on engineering topics. Prereq: Senior standing.

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

451 Systems and Controls (3) Analytical models of physical systems; comprised of nonlinear, linear, mechanical, and thermal systems. Analysis and design of feedback control systems using transient and frequency response techniques, stability analysis, sampled data systems. Prereq. 345, Electrical and Computer Engineering 301.

452 Computational Mechanics (3) Integration of fundamental physical laws, mathematical methods, and computational techniques necessary to develop engineering analysis and design capabilities. Finite element method. Prereq. 321, Aerospace Engineering 341.

455 Introduction to Machine Design (2) Engineering economy, optimization, design for automation, reliability, patents and product liability; design of mechanical engineering solid mechanics systems. Participation in team design effort; requires design report. Prereq. 332, 344.

456 Introduction to Thermal Design (2) Engineering economy, optimization, design for automation, reliability, patents and product liability; design of mechanical engineering thermal-fluid systems. Participation in team design effort; requires design report. Prereq. 332, 344.

466 Elements of Machine Design II (3) Application of strength and properties of materials, design factors, theories of failure to design of machine elements. Mini design experiences. Prereq. 321, Materials Science Engineering 201.

469 Machine Design (4) Design of complete machine; documentation including complete specifications, design calculations, working drawings, and cost analysis. Written and oral presentation. Prereq. 332, 344, 345.

471 Refrigeration and Air Conditioning (3) Vapor compression and absorption cycles; heat pump systems; psychrometric processes; air washers; cooling towers; solar radiation; building heat transmission. Prereq. 332, 344.

475 Thermal Engineering (3) Thermal systems with emphasis on turbomachinery, heat exchangers, combustion and system analysis and design including second law and economic analysis. Prereq. 332, 344.

479 Thermal Engineering Design (4) Design of complete thermal-fluid system including economic, technical and optimization aspects. Participation in team design effort including formal presentations and design report. Prereq. 456, 475.

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

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

494-495 Selected Topics in Mechanical Engineering (1-4,1-4) Problems and topics related to developments and practice in mechanical engineering. Prereq: Consent of instructor.

ENGINEERING NUCLEAR(716)

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


304 Nuclear and Radiological Engineering Laboratory (1) Radiation detection and counting instrumentation, counting statistics, half-life and decay schemes, gamma spectrometry, heat transfer experiments. Prereq. 342. Coreq. 470.

365 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 conduction, thermal radiation, free and forced convection. Prereq: 203 or Mechanical Engineering 331.


360 Reactor Systems and Safety (3) Safety and operating limits of nuclear steam supply systems 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 grading only.

403 Nuclear and Radiological Engineering Laboratory II (3) Crosssection 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 relative 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, biological effects, approximate methods of shield design, discrete ordinates, and Monte Carlo. Prereq: Physics 232.

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.

432 Radiation Risk Analysis (3) Radiation risk estimates for external and internal radiation, dose-response models, dose rate effects, prediction of radiation risks, radiation safety standards.

470 Nuclear Reactor Theory I (3) Fundamentals of reactor physics relative to cross sections, kinematics of elastic scattering, reactor kinetics, reactor systems and nuclear data. Analytical and numerical methods applicable to general criticality problems, eigenvalue searches, perturbation theory, and the multigroup diffusion equations. 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; power distribution 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 economics, 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 483.)

484 Introduction to Maintenance Engineering (3) Principles of maintenance and reliability engineering, and maintenance management. Topics include information extraction from 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. Prereq: 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 (1-5) Research related to recent developments in nuclear and radiological engineering. May be repeated to a maximum of 3 credits. Prereq: Consent of department head. Satisfactory/No Credit grading only.

ENGLISH (339)

Completion of the English composition requirement is prerequisite to all other English courses.

103 Writing Workshop I (1) Self-paced Writing Center tutorial for students wanting additional instruction while enrolled in English 101 or having ACT English and composite scores at or below 18 (or SAT verbal/composite scores at or below 450/800). Individual instruction in mechanics, paragraph development and essay structure. To receive credit, a student must participate at least two hours per week and must also pass the 101 class in which he or she is currently enrolled Satisfactory/No Credit grading only.

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: 101. Satisfactory/No Credit grading only.

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 650/1250). Grading scale and workload are same as in regular sequence though course proceeds at an accelerated pace. Practice in argumentation, 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 a grade below B in 118 will complete a year’s 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, No Credit 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 who demonstrate on the English Placement Examination a need for work in English structures, reading, or writing. Admission to this course is 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 organization and development with emphasis on informative and persuasive writing. Includes grammar and mechanics. Individual conferences. Admission to this course is by the English Placement Exam only. A, B, C, No Credit 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, No Credit grading.

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


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

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

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

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

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

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


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. Critical tools for perceptive 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 the novel. Critical tools necessary for judging varieties 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. Multi-genre focus. Writing-emphasis course. See Timetable for topic.

255 Public Writing (3) Rhetorical strategies for effective communication about public issues. Students will learn to write in multiple modes that respond to the needs of collaborative writing projects with business, academic, or political organizations.

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 feature films. 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.

311 Race and Ethnicity in American Literature (3) Examines the role of ethnic and racial identity in the literature of the United States. (Same as African and African-American Studies 331.)

322 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 being “American.” (Same as African and African-American Studies 333.) Writing-emphasis course.

334 Film and American Culture (3) American films as both works of art and social documents. Relationship between the medium of film and American culture in the twentieth century. (Same as American Studies 334 and Cinema Studies 334.) Writing-emphasis course.

351 The Short Story (3) Emphasis on 20th century: American, British, and International. 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, folk song, myth, legend, proverb, 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, folktale, history, biography, poetry, prophecy, apocalyptic. (Same as Religious Studies 389.)

399 Junior-Senior Honors Seminar (3) Seminar for students admitted to English honors program. Variable content determined by instructor, but usually focused on a particular 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 Criseyde 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 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 James.

433 American Realism and Naturalism (3) Literature from the time of the Civil War to World War I, including such writers as Twain, Howells, James, Jewett, Freeman, Crane, and Norris.

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

435 Modern American Novel Before 1900 (3) Emphasis on major novels through the period of realism and naturalism. May be repeated. Maximum 6 hours. (Same as American Studies 442.)

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

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

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

443 Topics in Black Literature (3) Contents vary according to particular genres, authors, or themes from 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 modern drama 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. 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 department. 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 or Linguistics 200 or consent of instructor. (Same as Linguistics 471.)

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

474 Teaching English as a Second or Foreign Language I (3) Introduces major issues surrounding teaching ESL/EFL, including political implications of teaching ESL/EFL: introduction to second language acquisition; learner variables in language learning; traditional and innovative approaches to ESL/EFL; basic features of American English grammar necessary for teaching ESL. Prereq: Second year of a foreign language 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; the effect of age; cognitive factors in second language acquisition; learner variables; second language 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; and verb tense, aspect, 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) Topic varies. May be repeated with different topic. Maximum 6 hours.

482 Major Authors (3) Content varies. Concentrated study of at least one of the most influential writers in British or American literary history: e.g., Donne, Pope, Austen, Tennyson, 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) Seeing, studying, and writing about drama as performed in London and Stratford-upon-Avon during the summer.

492 Off-Campus Study (1-15) Seeing, 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 persuasive writing to legal materials. Writing position papers, briefs, and memoranda, students learn 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 Thesis (3) Second semester of English honors program. Working individually, the student produces a substantial critical or creative 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.

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.

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

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

ENTOLOGY 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 scientific study 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.

306 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 306.)

313 Plant Pathology (3) Introduction to the microorganisms and environmental conditions causing disease in plants. Biology of 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 principles of control of important insect pests of farm, garden, orchard and household. Prereq: Six hours of Biological Science. 2 hours and 1 lab.

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.

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

ENVI RON MENTAL AND SOIL SCIENCES (345)

110 Introduction to Environmental and Soil Sciences (1) Invited speakers on current topics; career opportunities in the environmental sciences; field trip with departmental funding. Satisfactory/No Credit grading only.

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 of chemistry. 3 hours lecture and one 2-hour lab.

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

301 Professional Development (1) Techniques of effective professional communications; professional ethics; interviewing and the job search. Prereq: Junior standing.

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

334 Soil Nutrient Management and Fertilizers (3) Influence of soil properties on nutrient availability of 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.

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

434 Environmental Soil Chemistry (3) Composition and chemical properties of soils and processes that govern fate and behavior of chemicals in the soil environment. Topics include: chemistry; soil organic matter; mineral weathering; stability; aqueous speciation; surface chemistry; ion exchange, adsorption, and molecular retention; oxidation-reduction; and soil acidity, alkalinity, and salinity. Prereq: 210 and Chemistry 110 or 350.

442 Soil Genesis 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: 210, 215, 216, 366 and 2 credit.

444 Transport Processes in Soil (3) Basic understanding of soil physical properties and processes; influence of soil physical properties on water and chemical movement in soil; practical experience in the measurement and analysis of solophysical properties, water flow, and chemical movement in soil. Prereq: 210 and Physics 221 or equivalent.

446 Environmental Climatology (3) Study of atmosphere as environment. Physical, chemical and biological factors affecting climates of various earth environments; meteorological process affecting biosystems. Climatic change and the human impact on the atmosphere, consequences of climatic change and mitigation policies, microclimates and urban climates, atmospheric pollution, extreme events and ozone depletion. Design and operation of weather information systems; automated 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 environmental problems. Writing and oral communication emphasis course. Prereq: 434 and senior standing.

492 Internship (1-6) Supervised experience with a departmentally-approved employer. Student is responsible for making arrangements. Requirements include maintaining a daily log, supervisory evaluations, and a final report. May be repeated with a maximum of 6 hours credit. Prereq: Junior standing. Satisfactory/No Credit grading only.

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

EXERCISE SCIENCE (347)

100 Orientation to Exercise Science (1) Overview of discipline and professional areas for incoming Exercise Science majors. Must be taken prior to admission to the Exercise Science major.
260 Exercise Science Practicum (1) First practicum experience to support and clarify career goals. Satisfactory/No Credit grading only. Prereq: 100.

276 Fitness for Life (2) Evaluation and discussion of factors related to optimal health: cardiorespiratory function, muscular strength and endurance, flexibility, low back function, nutrition, and stress. Emphasis on evaluation of current status with recommendations for changes toward realizing health-related goals.

322 Exercise Leadership (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 progression to the major.

325 Athletic Training Techniques (5) Prevention of athletic injuries through sound conditioning programs and practices; recognition and immediate treatment of injuries. 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; related biomechanical principles. Prereq: Junior standing.

350 Disease and Injury: Epidemiologic and Demographic Perspectives (3) Disease and injury mortality and morbidity patterns, trends, differentials and causes are examined from 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 cumulative 2.5 GPA.

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


426 Exercise Science Practicum II (1-6) Supervised experience in exercise/fitness areas. Prereq: Senior standing or consent of instructor. May be repeated for a maximum of 10 hours. Prereq: Progression to the major and consent of instructor. Satisfactory/No Credit grading only.

480 Physiology of Exercise (3) Lecture and class doing 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: 441, 442, 426, 480, progression to major, and consent of instructor.

493 Directed Independent Studies (1-3) Independent study in a specialized area with Exercise Science. May be repeated. Maximum 9 hours. Prereq: Consent of advisor and progress to major.

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 environment 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 290.)


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

425 Investment and Portfolio Management (3) Rigorous introduction to the fundamental principles and concepts of the valuation of stocks and bonds (financial assets) in competitive and efficient financial markets. Risk and return analysis of portfolios of financial assets, capital market theory, security market theory, and financial market microstructure. Prereq: 301.

435 Financial Markets and Institutions (3) Examine the process of capital formation and allocation, including an evaluation of money and capital markets. Study the theories and mathematics of interest rate determination and characterize the financial services firms, which participate in these markets. Review the corporate policies and practices of financial service firms, including management of interest-rate, default, technology, and regulatory risks. Prereq: 301.


475 Insurance and Financial Planning Management (3) Course will cover (1) the basics of risk management and insurance and (2) the basic principles of financial, estate, and retirement planning. Prereq: 301.

485 Real Estate Finance and Investment Analysis (3) Explores the utilization of cash flow models to evaluate the financing of and investment in real property. In addition to examining financial feasibility analysis in detail, emphasis is also placed on understanding the factors influencing the dynamics of urban land markets and the government policy issues that must be addressed in urban areas. Prereq: 301.

493 Independent Study (1-6) Letter grade only. To be taken for more than 3 hours of credit in total, the student must receive consent of instructor and department head. Prereq: Consent of instructor and department head.

FIRST YEAR STUDIES (355)

101 First Year Studies (2) Integration into the academic community, including the nature and purpose of a college education, expectations for academic success, organization of university disciplines, and special emphasis on academic and career planning. Meets twice weekly.

401 Peer Mentor Techniques (1) Training of upperclass students as mentors and advisors for freshmen. Includes cognitive and developmental theories of the college-age student, teaching and learning styles, group communication and listening techniques, mentoring and advising skills. Prereq: Consent of instructor.

402 Peer Mentor Practicum (1) Peer mentoring of First Year Studies. Prereq: 401 and consent of instructor. Satisfactory/No Credit grading only. May be repeated. Maximum 3 hours.

FOOD SCIENCE AND TECHNOLOGY (390)

140 The Food Industry (3) Introduction to the food industry and the production of an array of safe food supply for national and international markets.

240 Field Observations in Food Processing: Introduction to, observation of and familiarization with processing, packaging, quality control and distribution of different types of foods. Prereq: 140; non-majors must obtain permission of instructor. 1 hour and 1 lab.

259 Evaluation and Grading of Dairy Products (2) Evaluation and scoring of milk, ice creams, cheddar cheese, cottage cheese, yogurt and butter. Prereq: 140 or consent of instructor. 2.75-minute lecture/labs.

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

301 Professional Development (1) Professional development requirements, resources and opportunities. Individual written and oral report and group discussion on careers and food companies. Prerequisite: 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 lecture and 1 lab.

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.


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

442 Special Topics In Food Science and Technology (1-3) Topics of current concern to the food industry. May be repeated. Maximum 9 hours. Prereq: Consent of instructor.

445 Application of Food Chemistry and Processing Principles (4) Interactions and functions of dairy, egg, cereal and other plant based ingredients during the production and storage of processed food products. Prerequisite: 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: 406. 1 lab.
490 Food Laws and Regulations (3) A 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 precedent 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 Practical Experience in Food Science and Technology (1-12) Specialized research in areas of interest under faculty direction. Field experience in supervised internship in the food industry. May be repeated; maximum 12 hours. Prereq: Consent of instructor.

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/LESSEDUCATION (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 as required for certification in foreign languages and Latin. Prereq: Completion or near completion of foreign language hours for certification and admission to Teacher Education Program.

FO RESTRY (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.


306 Forest Protection (3) (Same as Entomology and Plant Pathology 306.)

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.


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.


323 People and Forest Practices (2) Examination of how people, institutions and society at large affect and 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. Coreq: 305, 306, 323, 324, 326, 329 and 330. Letter grade only.

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.


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 the relationship of the woody cell wall to these properties; wood use in important commercial products; day field trip may be required. Prereq: Botany 110 or consent of instructor. Coreq: 332 for Forestry majors.

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 making temporary slides for microscopic examination; use of reference collection of wood samples; day field trip may be required. Prereq: Forestry, Wildlife and Fisheries 311 or consent of instructor. Coreq: 331 for Forestry majors.

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. 2 hours and 1 lab.

420 Forest Resource Management (2) Introduction to forest-level management concepts from an economic perspective. Harvest determination; goal setting under multiple-use concepts; taxes; classical approaches to regulation, linear programming and harvest scheduling; goal programming. Prereq: 314 and 324, or consent of instructor.

421 Forest and Wildland Resource Economics (3) Production functions, supply-demand and market analysis; non-market programs and projects; economic analysis and decision models; investment and financial analysis; managerial economics; taxes; forest products marketing. Prereq: 324 or consent of instructor.

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.

423 Wildland Recreation Planning and Management (3) Planning processes, master and site planning, site design projects; management strategies, methods of visitor and recreation site management; case studies. Weekend field trips may be required. Prereq: 312 and Junior standing in Wildland Recreation concentration, or consent of instructor. 2 hours and 1 lab.

433 Wood Adhesives and Glued Wood Products (2) Theory and practice of adhesive bonding; study of the wood substrate-adhesive interface for bonding; principles of adhesion; wood adhesives; gluing of solid wood and composite wood manufacturing practices; laboratory manufacture and/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. 1 hour lecture and 2 hour lab.

434 Wood Processing and Machining (2) Processing of wood including primary log breakdown and secondary processing into major products. Fundamentals of machining technology for major 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. 1 hour lecture and 2 hour lab.

435 Wood Drying and Preservation (2) Discussion of wood-moisture relationships. Introductions to wood commercial processing 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.

436 Wood Industry Survey (1) Industry descriptions and plant visitations to include manufacturing and sales, plywood, flooring, furniture and wood treated. Day field trips may be required. Prereq: Senior status in Wood Utilization Concentration or consent of instructor.

490 Practicum in Forestry (1-6) Supervised experience at departmental-approved, employment location. Prereq: Junior standing. Satisfactory/No Credit grading only.

493 Independent Study in Forestry (1-15) Special research or individual problem in Forestry, Letter grade or Satisfactory/No Credit grading only.

495 Internship in Wildland Recreation (1-6) A highly structured field experience guided by specific learning objectives pre-approved by the instructor and the field supervisor. The student is responsible for field placement. One credit per two weeks of full-time field experience. Prereq: Junior standing, consent of instructor. May be repeated. Maximum 6 hours.

496 Internship in Forestry (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, presentations or other assignments required. One credit per two weeks of full-time supervised field experience. Prereq: Junior standing, consent of instructor. May be repeated. Maximum 6 hours.

FORESTY, WILDLAND AND FISHERIES (398)

100 Current Issues in Renewable Natural Resources (1) Current resource issues presented by invited guest speaker each week; student discussion and interaction with the speaker; written work required; topics and speakers change each offering; attendance required at all class meetings. May be repeated. Maximum 3 hours. Satisfactory/No Credit grading only.

211 Introduction to Forestry, Wildlife and Fisheries (3) History of natural resources policies and practices; social perspectives and attitudes concerning natural resources and their use; techniques of integrated natural resources management, ecological principles, current policies, social trends, and forest and wildland resource use.

250 Conservation (3) Use and abuse of wildlands resources. Historical perspectives and current management of forests, wildlife, and fish of North America including aspects of their management, recreation and pollution.

311 Dendrology and Silvics of North American Trees (3) Identification, classification and nomenclature of important North American trees and woody scrubs; 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.

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.

313 Measurements and Sampling (2) Measurement techniques and sampling methods for vegetation; estimation of animal populations; map and aerial photo use. Prereq: Statistics 201, or consent of instructor. 2 hours and 1 lab.

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 management. Prereq: 211 or 250, Statistics 201, Agriculture 290, Mathematics 125. Coreq: Forestry, Wildlife and Fisheries 312. 1 hour and 1 lab.

318 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 management. Prereq: 211 or 250, Statistics 201, Agriculture 290, Mathematics 125. Coreq: Forestry, Wildlife and Fisheries 312. 1 hour and 1 lab.
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-partner, partnership and adversarial. Conflict resolution, proactive collaborative problem solving, and alliance building. Prereq: 317 or consent of instructor. 2 hours and 1 lab.

416 Planning and Management of Forest, Wildlife and Fisheries Resources (3) Integrated forest and wildland resource management through developing land management plans and analyzing case studies including conflict resolution. Prereq: Senior standing. 4 hour and 2 labs.

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.

FRENCH (405)

111-112 Elementary French (3,3) Language Laboratory required. Must be taken in sequence. Not available to students eligible for French 150.

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 150 is a review of elementary French, students who receive credit in this course may not also 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 (2) 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 major concentration. See the Director for further information.

211-212 Intermediate French (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 French credit.

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 follow 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 218.

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 language examinations, and upper division students desiring reading knowledge of the language. Undergraduate credit only. Not for credit for those having had 111-112 or equivalent. No auditors.

333 Intermediate Composition and Grammar (3) Emphasizes writing skills. Review of major grammatical points in French. 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 applies 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 345 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. Prereq: a 300-level literature course. Writing-emphasis course.


413 French Literature of the 18th Century (3) Major works of the Enlightenment. Prereq: a 300-level literature course. Writing-emphasis 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 for those majoring in a Romance language. Prereq: French 333 or 343 or 345 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. Prereq: French 333 or 343 or 345. Writing-emphasis course.

423-424 Advanced Conversation (1,1) Informal conversation with native speaker on contemporary topics. Stresses in class contact rather than outside preparation. Meets two hours a week for one semester credit. Prereq: French 333 or 343 or 345.

425 Introduction to Descriptive Linguistics (3) Initiation into the theory and practice of techniques of linguistic analysis in the subfields of phonetics, phonology, morphology, syntax, semantics, pragmatics and historical linguistics; discussion of their relevance to the learning and teaching of foreign languages and to the study of literary texts. Writing-emphasis course. (Linguistics 200 strongly recommended.) (Same as German 425, Linguistics 425, Russian 425, and Spanish 425.)

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 Roman 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 arts. 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.

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 Quebec as well as French literature connected with North America. Readings include explorer and missionary works, such as the Voyages of ChAMPLAIN and the Journals of the Jesuits, as well as the literature of contemporary Quebec. Prereq: a 300-level literature class. Writing-emphasis 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. Prereq: a 400 level literature course. Writing-emphasis 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. Prereq: 345 or consent of instructor. Writing-emphasis course.

450 Special Topics (3) If content varies, may be repeated for credit. Maximum 6 hours.

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. Satisfactory/No Credit grading only.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

FUNDAMENTAL ENGINEERING

See Engineering Fundamentals.

GEOGRAPHY (415)

101-102 World Geography (3,3) Selected topics and world regions, especially those with problems or situations of contemporary interest, to illustrate geographical points of view, 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 environments significant to humanity. Must be taken in sequence. 3 hours lecture and 2 hours lab per week. Prereq: 131 is prerequisite to 132.

210 Introductory Technical Geography (1) Covers basic concepts required in 310, 410, 411, and 413. Recommended to be taken prior to or concurrently with these courses. The shape of the Earth, map scales, coordinate systems, and projections. Self-paced, online course with written (offline) final exam.

COURSES OF INSTRUCTION 237
310 Introduction to Cartography (3) Properties, uses, design and production of maps as tools for geographical analysis. Introduction to desk top 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 landscape, culture regions, cultural ecology, innovation and diffusion, cultural integration, and world patterns of cultural phenomena.

323 Behavioral Geography (3) Types of human behavior, such as shopping, territoriality, commuting, residential mobility, and regional consciousness as they relate to distance, natural and cultural environments. (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) Interrelationship 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.

366 Geography of Tennessee (3) Survey of the geography of the State of Tennessee including its cultural, economic, and physical resources, as well as an examination of the state's diversity, development, and its geographic connections within the Southeast region and beyond. 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. Writing-emphasis course. (Same as Latin American Studies 372.)

373 Geography of South America (3) Physical, cultural, and economic characteristics of the countries of South America. Writing-emphasis course. (Same as Latin American Studies 373.)

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.)

410 Global Positioning Systems and Geographic Data (3) Theory and field and laboratory use of Global Positioning Systems for capturing digital geographic data; management of geographic data, including coordinate systems, datum issues, scanning, digitizing, map standards, and uncertainty in Geographic Information Systems. 2 hours lecture and 2 hours lab per week.

411 Computer Mapping and Geographic Information Systems (3) Concepts, management, and presentation of digital data for spatial analysis, with emphasis on cartography of database structures. 2 hours lecture and 2 hours lab per week. Prereq: 310 or consent of instructor. (Same as Information Management 431.)

412 Advanced Cartography Techniques (3) Cartographic design and data display techniques for reference and thematic maps. Basic principles and methods of map reproduction. Prereq: 310 or consent of instructor. 2 hours lecture and 2 hours lab per week.

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

415 Quantitative Methods in Geography (3) Geographic application of statistical techniques, pattern formation analysis, and analysis of areal units. Prereq: Mathematics 115 or Statistics 201 or consent of instructor.

419 Practicum in Cartography/Remote Sensing (2-6) Supervised practice in design and production of maps and other graphic materials in the Cartographic Services Laboratory or a similar organization. Prereq: Written consent of department prior to registration. Satisfactory/No Credit grading or letter grade.

421 Geography of Folk Societies (3) Geographical study of folk culture, emphasizing traditional material culture and rural settlement, with examples drawn from eastern North America and selected foreign areas.

423 Geography of American Popular Culture (3) Geographical study of regional variation in popular culture, especially focused on youth cultures in the United States. Writing-emphasis course. (Same as American Studies 423.)

432 Dendrochronology (4) Principles, techniques, and interpretation in tree-ring science. Applications in geography, climate, ecology, forestry, archaeology, and earth sciences. 3 hours lecture and 2 hours lab per week. Prereq: 131-132 or consent of instructor.

437 The Land-Surface System (3) Characteristics of surface form, water, vegetation, and surface processes; stresses of societal and regional interrelationships. People as evaluators and agents of change. Prereq: 131-132 or consent of instructor.

438 Climatology (3) General circulation system leading to world pattern of climates. Climatic change and modification, and interrelationships of climate and human activity. Prereq: 131 or consent of instructor.

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

446 Teaching and Learning Geography (3) Preparing prospective teachers in the content, skills, strategies, and understandings needed for the effective teaching and assessment of geography in K-12 schools. Course organization and content based largely on that of the National Geographic Standards.

490 Internship (3) Career-related experience with business, nonprofit, and government organizations. For geography majors. Prereq: Prior written permission of geography department head or authorized internship director. May be repeated. Maximum 6 hours. Satisfactory/No Credit grading only.

491 Foreign Study (1-15) Prereq: Written consent of department required prior to registration. Satisfactory/No Credit grading or letter grade.

492 Off-Campus Study (1-15) Prereq: Written consent of department required prior to registration. Satisfactory/No Credit grading or letter grade.

493 Independent Study (1-15) Prereq: Written consent of department required prior to registration. Satisfactory/No Credit grading or letter grade.

494 Undergraduate Research Experience (1-3) Supervised participation in active research projects. Prereq: Consent of department head. May be repeated once; maximum 6 hours. Satisfactory/No Credit grading only.

499 Special Topics in Geography (1-4) Topics vary. Prereq. consent of instructor. May be repeated with consent of instructor. S/NC or letter grade. Maximum 8 hours.

499 Honors: Senior Thesis (3) Students develop undergraduate thesis topic under the guidance of a faculty advisor. Prereq: Open to second semester juniors and first semester seniors who have a 3.2 or better overall GPA and permission of the thesis advisor.


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

GEOLOGY (424)

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

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

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

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

108 Honors: Earth, Life and Time (4) Laboratory and field emphasis to understanding fossils, evolution, and ancient environments throughout 4.5 billion years of Earth history. 3 lecture hours, 1 2-hour lab, and 2 field trips. Prereq: Grade of B or better in Geology 107, grade of A in Geology 101, or permission of the instructor. Students may not receive credit for both Geology 102 and 108.

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

202 Earth as an Ecosystem: Modern Problems and Solutions (3) Study of the earth as an integrated system between physical and biological processes. Focus is on human disturbances such as habitat destruction and pollution. No prerequisite. May not be applied toward Geology major.
203 Geology of National Parks (3) Geologic principles, processes, and earth materials responsible for the spectacular landscapes of national parks. Focus on interactions among internal earth processes, surficial earth processes, and human interactions. 3 lecture hours, plus an optional field trip. May not be applied toward the Geology major. Writing-emphasis course.

204 Geology Beyond the Earth (3) The geologic evolution of other bodies in the solar system, including Mercury, Mars, Venus, meteorites, and large moons of Earth and Jupiter. The focus is on geologic and possibly biological processes that can be identified and understood through geologic principles, remote sensing, and laboratory study of extraterrestrial samples. No prerequisites. May not be applied toward the Geology major.

310 Mineralogy (4) Introduction to the concepts of crystal chemistry, x-ray diffraction, optical mineralogy, and geochemical analysis of the important rock-forming minerals. Laboratory course on principles and applications to environmental problems. Includes phase diagrams, partitioning of trace elements, thermodynamic principles for evaluating stability of mineral assemblages, aqueous solutions, and applications of radiogenic 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.

370 Earth System and Geophysics (4) Stress and strain; mechanics and recognition of geologic structures (faults, joints, folds, foliations, lineations, microstructures); introductory plate tectonics; introductory earthquake and reflection seismology. Laboratory: geologic map interpretation, cross-section construction, fabric diagrams, fault-plane solutions, strain analysis, seismic interpretation. Field work: field observation and measurement, recording data, regional geology. Prereq: 101, 102, Mathematics 141-142, Physics 135 Coreq: 310. 3 hours lecture and one 2-hour lab.

380 Planetary Geoscience (4) Geologic, geophysical, and geochemical systems and processes at planetary scales. Topics include accretion, differentiation, outgassing, seismology, magnetism, geomagnetism, remote sensing, processes modifying surface morphology and material transport, hydrologic cycles, planetary exploration. Prereq: 330, 370. 3 hours lecture and one 2-hour lab.

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 stability of mineral assemblages, aqueous solutions, and applications of radiogenic 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: Consent of instructor. May not be applied toward the Geology major. Laboratory course on principles and applications to environmental problems. Includes phase diagrams, partitioning of trace elements, thermodynamic principles for evaluating stability of mineral assemblages, aqueous solutions, and applications of radiogenic 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.

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: 460. 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, Mathematics 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 or Coreq: Geology 485, or Environmental 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)

G 533

101-102 Elementary German (3,3) Language laboratory required. Must be taken in sequence. Not available to students eligible for German 150.

111 Language Laboratory (0)

112 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 admission to German 201. Since 150 is a review of elementary German, students who receive credit in this course may not also receive credit for any other 100 level German course and therefore also forfeit the six hours of elementary language credit awarded through placement examination.

199 German Language and World Business (2) 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-Division and Graduate Students (3,3) Elements of language, elementary and advanced readings and a final 10,000 word translation project. Open to graduate students preparing for language examination, and upper-division students desiring reading knowledge of the language. Undergraduate credit only. No credit for students who have completed 101-102. 322 may be repeated only once for credit. A, B, C, no credit grading.

350 German-Jewish Topics in Literature and Culture (3) Selected themes, issues, historical 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 the approval of the department. Maximum 6 hours. (Same as Judaic Studies 350.)

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. Fulfills Upper-level Distribution Requirement for Foreign Studies for those who have not satisfied the history requirement with Western Civilization. Writing-emphasis course.
240 COURSES OF INSTRUCTION

411-412 Advanced Conversation and Composition (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.

416 Metropolis Revisited (3) The 20th Century German or Austrian metropolis in the mirror of history, literature, theory, art, architecture, and music. Taught in English. Prereq: German 261-102 or simultaneous enrollment in that sequence and consent of instructor.

419 German Fairy Tales and Literary Fantasies (3) How and why forms of literary fantasies ranging from apocalyptic dreams to enchanted visions have changed over the centuries. Strong interdisciplinary component, tracing interconnections between philosophy, psychology, religion and literary history, as well as exploring the relationship between literary, musical and artistic representations of specific themes. Prereq: 6 hours of 300 courses or equivalent, excluding 331-332.

420 Selected Topics in German Literature from 1750 to the Present (3) Prereq: 6 hours of 300 courses excluding 331-332 and courses in English translation, or equivalent.

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.)

431 Images of Nature and the Body in German Culture (3) Representations of nature from idyllic refuge and object of praise to scientific object and precarious resource. Other themes include sexuality, the body, childhood, and aging. Discussions based on literary and documentary texts and films. Prereq: 6 hours of 300 courses or equivalent, excluding 331-332.

432 German Creative Thinking: Interdisciplinary Dialogues (3) Interdisciplinary conversations between German literature and art, music, philosophy, theoretical praxis, psychology, dance, anthropology, history, and the sciences. Comparative analyses of literary and non-fictional texts, films, and other media. Prereq: 6 hours of 300 courses or equivalent, excluding 331-332.

433 Nation, Race, and Ethnicity (3) Examination of cultural constructions of nation, race and ethnicity and how they have challenged each other and developed in German-speaking countries since the eighteenth century. Close study and analysis of fiction, non-fiction, and films that address controversial topics such as assimilation, integration, racial/ethnic identity, national identity formation and multiculturalism. Prereq: 6 hours of 300-level courses or equivalent, excluding 331-332.

434 Extraordinary Wo(Men)-Outcasts, Rebels, Martyrs and Saints (3) Examination of German texts and visual media that have challenged mainstream thinking throughout the centuries. Strong interdisciplinary component, focusing on literary and artistic forms that depict struggles involving religion, politics and gender. Prereq: 6 hours of 300 courses or equivalent, excluding 331-332.

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 syntactic 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 speech. 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 United States or abroad with permission of the Language and World Business Director. For Language and World Business majors only. Satisfactory/No Credit grading only.

491 Forensic Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

494 German Community Service Practicum (1) Supervised by the director of the Lower-Division German program, students assist German classes at local schools or they perform supervised service with local institutions that promote awareness of German culture among the general public. Prereq: 18 hours of upper-division German courses and consent of program chair. Maximum of one hour credit per semester. May be repeated for a maximum of 3 hours.

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

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 ancient Greece in the original Greek. May be repeated for credit. Maximum 9 hours. Prereq: 401-402 or consent of instructor.

HEALTH (449)

110 Personal Health and Wellness (3) Information and behavior necessary to approach health and wellness scientifically and to develop confidence in judgments affecting personal health and wellness. Students who have received credit for Health 330 may not thereafter receive credit for this course.

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

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

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

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

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

306 Health Instruction in Elementary Grades (3) School health program for the child in elementary grades. Teachers become familiar with organizing and presenting health content, health materials, health knowledge, and behavior development.

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

330 Wellness For Health Professional (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.

375 Health Communications (3) Communication strategies for health educators in various settings. Emphasis on interpersonal relationships, public relations, leadership, small group processes, health teams, and effective use of media. Prereq: Health 300, Public Health 300.

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.)

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

406 Death, Dying and Bereavement (3) Aspects of dying, death and handling the trauma of loss. Emphasis on the psychological, physical, spiritual and social implications of death.

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

425 Women’s Health (3) Factors influencing women’s health and wellness in women’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.)

426 Health Education Program Planning (3) Principles of curriculum development, program implementation, 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.

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

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

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/wellness or health promotion issues. May be repeated. Maximum 9 hours.

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

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 grading only. Usually taken in final semester.

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 ancient Greece in the original Greek. May be repeated for credit. Maximum 9 hours. Prereq: 401-402 or consent of instructor.
221-222 History of the United States (3,3) 221—Settlement to 1877. 222—1877 to present. Writing-emphasis course.

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 present. Writing-emphasis course.

247-248 Honors: Development of Western Civilization (3,3) Consent of department required. Students will attend the appropriate 241-242 lectures and the designated honors discussion section. Writing-emphasis course.

255-256 Introduction to Latin American Studies (3,3) Societies of Latin America with special emphasis on dominant culture patterns, social change, and impact of nationalism. 255—Pre-Colonial and Colonial periods through Independence era. 256—Latter 19th century and the Modern period. Writing-emphasis course. (Same as Latin American Studies 251-252.)

261-262 A History of World Civilization (3,3) Historical survey of world civilization. 261-Origins to 1500. 262-1500 to present. Writing-emphasis course. 

307 Honors: Introduction/Historical Problems (3) Historical analysis, philosophy of history, examples 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, socio-economic changes, constitutional crises, emergence of military and political autocracy. Writing-emphasis 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 1100-1300. 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 and intellectual developments. A specific emphasis upon historical interpretation.

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

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

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

320 Contemporary Europe, 1906-Present (3) The transformation 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, decolonization; the impact of Freud, Einstein and existentialism; welfare states; and the problems of European unification. Writing-emphasis course.

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

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

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. 331-1689 to the present. Medieval state, church, and society; the development of Anglo-American law, the monarchy and parliamentary government, the Reformation, 17th Century revolutions, commercial, agricultural and industrial revolutions; class conflict, empire, the welfare state, world wars, economic crises.

334-335 History of Germany (3,3) 334–Germany I, T1818. The First Reich’s fortune and failure. The development 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–Germany II, Since 1800. The Quest for Nationhood. The evolution of modern German revolution, industrialization and wars, from Moltke’s Prussian, 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 include: Ireland’s status as England’s first colony from the Norman period to Cromwell; and beyond: peasant revolt, Catholic-Protestant antagonism; nationalism; revolutionary movements; the famine; and Home Rule, Partition, and independence in the 20th century, with continuing sectarian tensions.

340-341 History of Russia (3,3) 340—to the middle of the 19th century. 341—from the middle 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 policies, 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 Americans in eras of colonization; migration; industrialization; urbanization; conservation; and environmentalism. Writing-emphasis course.

350 Colonial America to 1763 (3) Social and cultural developments in the American colonies from the point of contact between Europeans and Native peoples 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 eras.

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 to present. Emphasizes domestic history but includes military and foreign policy.

356 The 1960s in America (3) The politics, social movements, and cultural rebellions of the 1960s. Topics include race riots, antigovernment, new arts forms, Great Society legislation, the rise of nonconservatism, empowerment movements by people of color, Cold War policies, the Vietnam war, and the growth of a small but vibrant social movement. (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. 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; similarities and 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. Topics include 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 intersocietal interaction. Writing-emphasis course.

370 History of the Middle East (3,3) 369-Rise and spread of Islamic civilization to the sixth 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 Judaic Studies 369-370.)


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) Relationships between the West and Africa, Asia, and Latin America since 1870 across a broad spectrum of critical issues. Includes economic 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 and common patterns in their causes, phases 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 against European settlers; 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.)
210 Food Service Operations Management (3) Principles of menu development, equipment selection, layout, purchasing, production, and service of food in volume.

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.

224 Tourism Management (3) Examination of the various components of the tourism industry, motivators to travel, and the various market segments. Includes the analyses of the economic, social, cultural, and environmental impacts to tourism. Prereq: RCS/HRA 119 or consent of instructor.

311 Developing a Diverse Service Workforce (3) Personnel management procedures and policies to develop a diverse service workforce. Topics include leading organizational change; labor cost; employee review process retention issues. Prereq: HRA/RCS 210 or HRA 211. (Same as RCS 311.)

HRA 312 Leadership in the Service Marketplace (3) Analyses of leadership and employment dynamics in the service organization. Includes the application of theory to the Development personal, interpersonal, and group communication skills, and the management of a diverse workforce. Prereq: RCS/HRA 311 or consent of instructor. (Same as RCS 312.)

321 Quantity Food Procurement, Production, and Service Laboratory (1) Application of principles in determining needs, procuring, storing, producing and serving foods in volume. Prereq: Nutrition 100 or 107, Microbiology 210. Coreq: 210.

326 Food and Lodging Cost Control (3) Budget, cost analysis, computer, financial statement use in decision making in lodging and foodservice systems. Prereq: 210, Mathematics 119/123, and Accounting 201, or consent of instructor.

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: 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: 320 or RCS 310, RCS 341, Marketing 300. (Same as RCS 376.)

390 Professional Development (3) Development of skills important to career success. Focus on business communications, time and stress management, motivational and negotiating skills. Co/Prereq: 311, 326 or RCS 310, and progression into the program. (Same as RCS 390.)

410 Strategic Planning for the Hospitality Industry (3) Hospitality Management from a strategic planning perspective; development and implementation of restaurant strategy from financial, operational, and customer orientation. Prereq: 390.

420 Professional Experience in Service Management Hospitality (6) Supervised educational experiences in selected hospitality operations. Prereq: Progression into the program; 210, 332 or 341. Satisfactory/No Credit grading only.

423 Marketing for Hospitality and Tourism (3) Marketing principles and practices specifically applied to the hospitality and tourism industry. Includes the analyses of various hospitality and tourism marketing strategies and the implications of those strategies. Develops the application of marketing tools as an integral part of the hospitality and tourism operation. Prereq: 210, 211, 224, Marketing 300, or consent of instructor.

425 Legal Issues in Service Management (3) Legal rights and responsibilities of service industry managers, their staff and clientele. Prereq: 390, RCS 390, progression into the program or consent of instructor. (Same as RCS 425)

435 Conventions and Meetings: Pursuit and Attainment (3) Discussion of types of conventions/meetings. Roles of meeting planners, identifying decision makers, site selection, negotiating, budgeting, marketing and gaining commitment from group. Prereq: 210, 211, 390 or consent of instructor.

440 Special Topics: Hotel and Restaurant Administration (1-3) Develops specific helping skills; involvement in roles and function of human services profession; provides direct service in a supportive learning setting. For majors only. Prereq: Progression to the major.

441 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; involvement in roles and function of human services profession; provides direct service in a supportive learning setting. Prereq: Progression to the major.

445 Advanced Food Production and Service Management (3) Principles of menu development, equipment selection, layout, purchasing, production, and service of food. 2 hours and lab. Prereq: 390.

450 Advanced Lodging Management (3) This course is designed to allow students 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: 211, 390, Marketing 300.


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 grading only.

HUMAN ECOLOGY (520)

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 spaces.

410 Human Ecological Systems (3) Systems theory as a component of human ecology; factors impacting on the nature of individuals, families, and environments. Prereq: Child and Family Studies 210 or 220 or RCS 341; 6 upper-division hours in major.

HUMAN RESOURCE DEVELOPMENT (529)

340 Training Systems: Strategies and Techniques (3) Fundamental knowledge, strategies and techniques of training systems required of students planning careers in HRD. During design and development, students develop skills in sequencing instruction, developing effective instructional strategies and techniques that produce the desired learning outcomes, multimedia presentations, and assessment and evaluation tools required to test desired outcomes for the learner, the trainer, and the program. Prereq: Business Administration 331 and 332 or 341 and 342.


452 Technology in Learning Environments (3) Addresses the use of diverse technology for creating and facilitating instruction and learning. Technology use is explored in terms of stimulating, channeling, and sustaining learning. Prereq: 440; Coreq: 440.

455 Program Evaluation (3) Provides instruction and practices in learner and program evaluation that occurs in occupational and educational settings. Conducting learner and program evaluation becomes one of the most critical competencies for trainers and educators in organizations today. By completing this course, the student will understand the concepts of performance assessment, different approaches of program evaluation, program evaluation techniques of program evaluation, and the four-level evaluation model widely used for program evaluation in industries. The students will also possess competencies to conduct program evaluation. Prereq: 440.

479 Internship and Career Development (3) Provides an opportunity to integrate and apply the knowledge and skill-based competencies obtained in the classroom. Experience through the internship assists the student in making a career decision. The internship is the capstone course bridging the gap between the classroom and the corporate world. Prereq: 452.

485 Special Topics in Human Resource Development (1-3) Topics to be assigned. May be repeated.

493 Independent Study (3) Topic arranged by student in collaboration with a supervising faculty member. May be repeated for a maximum of 6 hours. Prereq: Junior or senior standing.

HUMAN SERVICES (532)

330 Thinking About People (3) Development of thoughtful, informed and empathic attitudes toward human beings—those providing services as well as those receiving service. Prereq: Progression to the major.

380 Human Services Methodologies I (3) Basic helping skills essential to the effective delivery of Human Services. Prereq: Progression to the major or consent of instructor.

390 Information Interpretation and Assessment (3) Information gathering and assessment for human services are examined in depth in relation to human services practice. Formulating questions, identifying relevant data, using related resources, interpreting information and synthesizing information in a programmatic setting. Prereq: Progression to the major.

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 lecturers; includes current topics and professional behavior. Satisfactory/No Credit grading only.

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, 330. Coreq: 440.

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. Writing emphasis course.

440 Human Services Field Work (6) Human Services Field Work (6) Practical field experience within an approved and supervised human services setting. Explores day to day activities within a human services organization. Develops specific helping skills; involvement 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. Satisfactory/No Credit grading only.

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; involvement in roles and functions of human service profession; provides direct services in a supportive learning setting. For majors only. Prereq: 420, 440. Satisfactory/No Credit grading only.

450 Special Topics in Human Services (3) Issues, methods, values, and trends with implications for helping practitioners, such as art therapy, legal and ethical issues, and self-awareness education. May be repeated. Maximum 9 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)
IN D U S T R I A L  E N G I N E E R I N G

See Engineering Industrial.

I N F O R M A T I O N  M A N A G E M E N T  (5 5 8)


342 Introduction to Database Systems (3) Fundamentals of database technology, database design, database use, database system controls, and database implementation. Focus is on developing the technical and business skills necessary to successfully gather information and improve business processes in technology-driven environments. Students work "hands-on" with modern database management systems. Prereq: 341.

351 Object-Oriented Programming (3) Fundamentals of object-oriented programming languages. Topics include object-oriented systems design and development, data and file structures, and algorithms. Prereq: 341.

431 Computer Mapping and Geographic Information Systems (3) (Same as Geography 411.)

442 e-Business (3) Internet technologies currently being used for implementation and control of e-businesses, security issues created by these technologies, the behavioral and organizational challenges being faced by firms that are integrating these technologies, and the impact of these technologies on emerging business models. Comparison of traditional business models with e-Business models. Web application development using current web development tools requires programming skills. Prereq: 351.

I N F O R M A T I O N  S C I E N C E S  (5 6 0)

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 appropriate uses; 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.

300 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 providers: hosts, bulletin boards, nets; information overload/ anxiety, science fraud, gatekeeping concepts; updating systems; environmental 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 430).

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: 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.

I N S T R U C T I O N A L  T E C H N O L O G Y  (5 6 9)

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.

I N T E R D I S C I P L I N A R Y  P R O G R A M S  (5 8 1)

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 Satisfactory/No Credit 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.

I N T E R I O R  D E S I G N  (5 8 2)

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 consent of instructor.

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.

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-cause properties of behavior-environment systems. (Same as Urban Studies 200.)

221 Theory of Color (2) Introduction to basic color theory and its application to interior environments. Explores aesthetics and psycho-physiological effects.

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.


272 Fundamentals of Interior Design II (6) Problem solving, spatial organization of micro and macro environments, increasingly larger scale; communication of total design solution graphic, audio and photographic techniques; emphasis on the use of color. Prereq: 271. Six hour studio.

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 American. Prereq: Art History 172 and 173 or consent of instructor.

312 History of the Contemporary Interior Architecture (2) Interior architecture, 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.

331 Working Drawings (3) Building on previous computing skills, this course focuses on interior construction documentation through computer aided design application. Course will emphasize technical graphic conventions, codes and regulations affecting the health, safety, and welfare of public. Three hour studio. Prereq: 272, Architecture 231 or equivalent.


371 Intermediate Interior Design I (6) Studio problems of intermediate complexity with emphasis on programming and schematic design phases; in-depth analysis of current programming methods; integrates and extends previous knowledge of spatial organization and planning of micro and macro environments. Six hour studio. Prereq: 272 and third year standing in interior design.

372 Intermediate Interior Design II (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. Six hour studio. Prereq: 371, Architecture 231.

400 Proxemics (2) Analysis of space and behavior; within a cultural context. Application to design and design process. Examination of theoretical foundations and concepts from environment and behavior. Simulation techniques and methods for identifying behavioral design requirements. Prereq: 200, 231. Coreq: 471 or consent of instructor. Two hour studio.

411 History of American Interior Architecture (3) Historical developments in interior architecture and decorative arts within cultural context, colonial era through nineteenth century. Prereq: 311 or consent of instructor.

417 Honors: Interior Design (1-4) Advanced research in interior design problems for juniors or seniors. Prereq: Consent of Interior Design faculty. May be repeated. Maximum 8 hours.

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.


460 Lighting for Interior Design (3) Lecture presentation of design principles in lighting, acoustics and mechanical systems. Course will emphasize fundamentals of lighting design practices and techniques. Prereq: 271, Physics 161, or consent of instructor.

464 Environmental Factors in Design (3) Human factors and associated research methodologies 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. Prereq: 372, 420, Coreq: 400, or consent of the instructor Four hour studio.

472 Advanced Interior Design II (6) Comprehensive studio problems of advanced complexity; integrates and extends previous experiences utilizing systematic design methodologies. Prereq: 471 or consent of instructor. Six hour studio.

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. Prereq: 471 or Arch 372 or consent of
instructor. Two hour lecture and two hour studio.

491 International Study (1-15) Individual or group studio and/or study abroad; academic research, field investigation, or studio experiences. Determination of 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. Prereq: Consent of instructor. May be repeated. Maximum 8 hours.

ITALIAN (584)

111-112 Elementary Italian (3,3) Introduction to Italian. Must be taken in sequence. Language Laboratory required.

199 Italian Language and World Business (2) This course will examine the importance of foreign trade at the local, state, and national levels. An interdisciplinary team 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. Restriction: students majoring in Language and World Business. See the Director for further information.

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.

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

314 Highlights of Italian Civilization (3) Survey of Italian civilization with special attention to major social, political and cultural achievements. Prereq: 212 or consent of instructor.

341-342 Intermediate Grammar, Composition and Conversation (3,3) Grammatical analysis of Italian prose; review of grammatical principles and their application in translation from English to Italian, both written and oral; exercises in free composition. Prereq: 212 or equivalent.

401 Dante and Medieval Culture (3) Introduction to the significance of this great Italian writer. Prereq: 212 or consent of instructor. (Same as Medieval Studies 401.)

402 Petrarch and Boccaccio (3) Prereq: 212 or consent of instructor. (Same as Medieval Studies 402.)

403 Literature of the Rinascimento (3) From Pucci to Tasso, the Quattrocento and the Cinquecento. Prereq: 212 or consent of instructor.

404 The Modern Italian Short Story (3) Prereq: 212 or consent of instructor.

405 Modern Italian Poetry (3) Prereq: 212 or consent of instructor.

406 The Modern Italian Novel (3) Prereq: 212 or consent of instructor.

409 Directed Readings (3)

410 Italian Theatre (3) Survey of Italian theatre from Renaissance to present. Prereq: 212 or consent of instructor.

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.

421 Topics in Italian Literature and Cinema (3) Examination of Italian literature and cinema from 1930 to the present focusing on literary works translated into English and adapted into film. Objectives of the course are to investigate the relationship between literature and cinema and to achieve a greater understanding of Italian culture since 1930. Films will be shown in Italian with English subtitles. May be repeated. Maximum of 6 hours. (Same as Cinema Studies 421.)

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

493 Independent Study (1-15)

JAPANESE (589)

151-152 Elementary Japanese I (5,5) (Same as Asian Languages 151-152.)

251-252 Intermediate Japanese 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 II (4,4) (Same as Asian Languages 351-352.)

451 Readings in Japanese Literature (3) (Same as Asian Languages 451.)

JOURNALISM (594)


201 Writing for Mass Media (3) Principles and practice of news writing for print and broadcast media. Comprehensive overview of the major forms of writing for the mass media. Role of media in society. Not available for majors in the College of Communications and Information. Prereq: English 102.

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.


211-212 Advanced News Writing (3,3) Techniques of writing in-depth articles for mass medium 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.

240 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.

280 Communication Graphics (3) Principles and practice in the visual aspect of communication. Basic camera technique, darkroom work, historical and contemporary photojournalism. Lecture and laboratory.

380 Option 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 medium 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.

455 Issues in Science Communication (3) Writing about current issues in science and technology. Emphasis on clarity and accuracy. 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. Prereq: Consent of instructor.

470 Sports Writing (3) Writing sports stories, features, and columns. Emphasis on developing story ideas; on gathering information by observing events, interviewing sources and examining documents; and on writing in a clear, concise manner and in a consistent style. Sports writing is considered from the standpoint of news reporters, sports information specialists, and others with an interest in sports cable channels and magazines.

480 Advanced Photojournalism (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.

490 Independent Study (1-15) Advance approval of hours and topics by advisor required for registration. May be repeated for a maximum of 15 hours credit.

492 Field Experience (1-2) Approved internships and other supervised practice in journalism. Prereq: 360, senior standing, and consent of instructor. May be repeated for a maximum of 4 credit hours. Satisfactory/No Credit grading only.

493 Independent Study (3) Prereq: Consent of instructor. May be repeated for a maximum of 6 hours.

JUDAIC STUDIES (595)

311 Ancient Hebrew Religious Traditions (3) (Same as Religious Studies 311.)

312 Religious Aspects of Biblical and Classical Literature (3) (Same as Religious Studies 312.)
320 Women and Religion (3) (Same as Religious Studies 320 and Women’s Studies 320.)
322 Medieval Philosophy (3) (Same as Philosophy 322 and Medieval Studies 322.)
350 German-Jewish Topics in Literature and Culture (3) (Same as German 350.)
369 History of the Middle East (3) (Same as History 369.)
370 History of the Middle East (3) (Same as History 370.)
381 Introduction to Judaism (3) (Same as Religious Studies 381.)
382 History of Jewish Civilization I (3) (Same as History 382.)
384 History of Jewish Civilization II (3) (Same as History 384.)
385 Contemporary Jewish Thinkers (3, 3) Writing emphasis. May be repeated. Maximum 6 credit hours. (Same as Religious Studies 385.)
386 Voices of the Holocaust (3) (Same as Religious Studies 386.)
395 The Crusades and the Medieval Christian-Muslim Relations (3) (Same as History 395)
405 Modern Jewish Thought (3) (Same as Religious Studies 405.)
414 Early Christian and Byzantine Art, to 1500 (3) (Same as Art History 414.)
431-432 Selected Readings from Latin Literature (3,3)

LATIN (257)

111-112 Beginning Latin (3,3) Must be taken in sequence. Not available to students eligible for Latin 150.
150 Latin Transition (3) This course is designed to prepare students for enrollment in Latin 251. Prereg: Two years of high school Latin and a score on the Latin placement exam below that required for admission to Latin 251. Since 150 is a review of elementary Latin, students who receive credit in this course may not also receive credit for any other 100 level Latin course and therefore also forfeit the six hours of elementary language credit awarded through placement examination.
251 Intermediate Latin: Grammar Review and Readings (3) Prereg: 112 or 150 or placement through the Latin placement examination.
252 Intermediate Latin: Vergil’s Aeneid (3) Prereg: 251 or equivalent.
351 Cicero and Sallust (3) Prereg: 252 or equivalent.
414 Cicero and Techniques of Latin Prose Composition (3) For advanced students in Latin. Practice in prose composition, the writings of Cicero the model. Prereg: 351-352 or consent of instructor.
431-432 Selected Readings from Latin Literature (3,3) For advanced students in Latin. Oratory, historical writings and poetry of ancient Rome, in the original Latin. May be repeated for credit. Maximum 9 hours. Prereg: 351-352 or consent of instructor.
435 Medieval Latin (3) Selected readings from the Latin prose and poetry of medieval Europe. Prereg: 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)
313 Peoples and Cultures of Mesoamerica (3) (Same as Anthropology 313.)
314 Peoples and Cultures of South America (3) (Same as Anthropology 314.)
315-316 Aspects of Luso-Brazilian Literature (3,3) (Same as Portuguese 315-316.)
319 Caribbean Cultures and Societies (3) (Same as Anthropology 319 and African and African-American Studies 319.)
331 Introduction to Hispanic Culture (3) (Same as Spanish 331.)
333 Survey of Spanish-American Literature: 1700 to Present (3) (Same as Spanish 333.)
334 Survey of Hispanic Literatures: Beginnings-S1700 (3) (Same as Spanish 334.)
360 History of Latin America (3) (Same as History 360.)
361 History of Latin America (3) (Same as History 361.)
372 Geography of Middle America (3) (Same as Geography 372.)
373 Geography of South America (3) (Same as Geography 373.)
401 Cultural Plurality and Institutional Changes in Latin America (3) (Same as Spanish 401.)
402 Latin American Studies Seminar (3) (Same as Spanish 402.)
413 Topics in Literature and Language of the Portuguese Speaking World (3) (Same as Portuguese 413.)
422 Topics in the Literature and Language of the Portuguese Speaking World (3) (Same as Portuguese 422.)
456 Latin American Government and Politics I (3) (Same as Political Science 456.)
460 History of Brazil (3) (Same as History 460.)
461 Cuban Revolution in Historical Perspective (3) (Same as History 461.)
462 History of Mexico (3) (Same as History 462.)
463 Modern Latin American History in Film (3) (Same as History 463.)
465 Latin American Film and Culture (3) (Same as Spanish 465 and Cinema Studies 465.)
475 Studies in Latin American History (3) (Same as History 475.)
479 Disenchanted Texts in Hispanic Literature (3) (Same as Spanish 479.)
491 Foreign Study (1-15)
492 Off-Campus Study (1-15)
493 Independent Study (1-15)

LEGAL STUDIES (617)

300 Mass Communication Research Methods (3) (Same as Communication 300.)
301 The Legal Environment of Business (3) (Same as Business Law 301.)
330 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 Mass Communication Law and Ethics (3) (Same as Communication 400.)
401 Political Analysis (3) (Same as Political Science 401.)
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.)
435 Criminal Law and Procedure (3) (Same as Political Science 435.)
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) Introduction to linguistics with focus on language development and use of language by individuals and groups. Prereg: 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. Prereg: 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)

310 Intermediate Logistics (3) The concepts, principles, and methods used to plan, organize, and manage logistics activities including customer service, order processing, and information flow, transportation, warehousing, purchasing, inventory, and network design. Prereq: Business Administration 331.

400 Special Topic in Logistics and Transportation (3-6) Seminar in current problem area in logistics and transportation. Topic announced prior to offering. Prereq: Consent of instructor. May be repeated once for additional credit provided topic is different. Maximum 6 hours.

411 Logistics and Transportation Analytical Methods I (2) 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: 310.

412 Logistic and Transportation Analytical Methods II (3) Models and modeling systems with applications to strategic, tactical, and operational supply chain problems. Prereq: 411.

421 Strategic Sourcing (2) The fundamentals of procurement and purchasing within the context of an integrated supply chain. Approaches and methods for realizing a competitive advantage and improved profitability from the procurement and sourcing process. Prereq: 310.

441 Global Logistics and Transportation (2) Multinational logistics strategy, import-export process, global sea, surface and air operations comparative transport systems analysis. Prereq: 310.

460 Supply Chain Strategy in a Global Environment (3) Senior seminar in development of strategy for logistics and transportation in a supply chain perspective. Prereq: 411, 421, 441.

497 Honors I (3) Theory, methods, and issues pertaining to successful personnel management. Prereq: 340, and any 2 of 452, 454, 456, or 458.

498 Independent Study (1-6) Directed research on subjects of mutual interest to student and staff member. Prereq: Consent of instructor. May be repeated. Maximum 6 credit hours.

MANAGEMENT (625)

300 Organizational Management (3) Not for Business majors. Study of the theories of organizations and the practice of management within them. Prereq: Business Administration 201 and senior 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.


401 Business Strategy and 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 queueing models, queuing models. Prereq: Consent of instructor.

411 Labor Relations and Collective Bargaining (3) American labor history, structure and philosophy of contemporary unions, nature of collective bargaining, and dispute settlement. Prereq: Consent of instructor.

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.

431 Human Resource Management I (3) Theory, methods, and issues pertaining to successful personnel management. Prereq: Business Administration 341, senior standing.

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.

471 International Management (3) Factors significant to the manager in international business activities.

492 Management Off-Campus Study (1-6) Satisfactory/No Credit grading only. Prereq: Consent of Instructor.

493 Independent Study (3) Readings, research, and special projects. Prereq: Consent of instructor. May be repeated one time for credit.

MARKETING (632)

300 Marketing and Supply Chain Management (3) Not for Business majors. Practical approach oriented overview of how every manager needs to know in order to effectively provide value to customers of the organization, and improve long-term performance through the systematic, strategic coordination of traditional business functions within a particular company and across businesses. Prereq: 300; not for business majors.

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. Prereq: 300; not for business majors.

340 Marketing Strategy Frameworks (3) Examines the marketing strategies that customer focused organizations use to acquire and retain customers. Students learn skills needed to create and implement these strategies. Topics include market opportunity analysis, marketing strategy planning, segmentation and targeting decisions, value positioning decisions, customer focused strategies (e.g., Integrated Marketing Communication, brand equity, Customer Relationship Management), and translation of customer learning into marketing strategy. Prereq: Business Administration 332.

350 Customer Value Analysis (4) Examines how organizations gather, analyze, and interpret data needed by managers to learn about customers in markets. Students learn how to organize data into customer databases and how to analyze those databases to learn about customers. Topics include selected consumer/customer behavior theories, customer value determination, selected market research techniques, and customer database management techniques. Prereq: 340. Marketing major and co-concentration students only: 350 is a pre-requisite or co-requisite for 452, 454, 456, 458.

400 Special Topics in Marketing (3) Topics of current interest in marketing. Topic announced prior to offering. Prereq: Business Administration 332. May be repeated once for additional credit provided topic is different. Maximum 6 hours.

452 Product/Service Management (2) Examines how organizations deliver value to customers through product and service strategies. Topics in product management include new product development, design life cycle, product mix management, and retail/service strategy. Topics in service delivery include service quality/productivity, service failures/repair, and role of technology. Prereq: 340. Note: Marketing major and co-concentration students only: 350 is a pre-requisite or co-requisite for 452.

454 Channels Management (2) Examines how organizations deliver value to customers through distribution strategies. Topics will include channel design, channel management, channel partner communication and conflict management, and retail/wholesale management strategies. Prereq: 340. Marketing major and co-concentration students only: 350 is a pre-requisite or co-requisite for 454.

456 Integrated Marketing Communications Management (2) Examines how organizations communicate value to customers. Communication topics will be presented in the framework of an Integrated Marketing Communication strategy. Topics will include advertising management, sales promotion, publicity and public relations, sponsorship marketing, direct marketing and e-marketing.

485 Marketing Management (2) Examines how organizations design and manage the marketing process. Prereq: 340, and any 2 of 452, 454, 456, or 458.

492 Marketing Off-Campus Study (1-6) Satisfactory/No Credit grading only. Prereq: Consent of instructor.

493 Independent Study (1-6) Directed research on subjects of mutual interest to student and staff member. Prereq: Consent of instructor. May be repeated. Maximum six credit hours.

497 Honors I (3) Topics may include nonbusiness marketing applications, macroenvironmental issues, market segmentation, international marketing, services marketing, marketing channels and related issues. Prereq: Consent of instructor.

MATERIALS SCIENCE IN ENGINEERING

See Engineering Materials Science.

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. The course is designed to prepare students for enrollment in Mathematics 110, 115, 119, 130, 201, and 202. Course does not count toward the total number of hours required for graduation, not does it fulfill any mathematics requirement. A, B, C, No Credit grading.

109 Algebra Workshop (1) Self-paced tutorial center for students taking 119, 130, or 141 who need additional help (as determined by placement exams, assessment exams, or classroom performance). Individual and computerized instruction and enrichment algebraic skills. To receive credit, a student must pass the 119, 130, or 141 class in which he/she is currently enrolled. May be taken for credit three times. Satisfactory/No Credit grading only.
110 Algebraic Reasoning (3) A course in the applications of elementary mathematics to life in the modern world. Includes applications in financial mathematics, consumer mathematics, and other areas. Students preparing to take 123-125 should take 119 instead of 110. Prereq: algebra and one year of geometry in high school and satisfactory placement test scores or Mathematics 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 any course numbered 123 or higher (except for 201 or 202) may not subsequently receive credit for 119. Prereq: Two years of algebra and one year of geometry and either satisfactory placement test scores or Mathematics 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. Prereq: Two years of algebra and one year of geometry in high school plus satisfactory placement test score, or 119 or 130.

125 Basic Calculus (3) For students not planning to major in the physical sciences, engineering, mathematics, or computer science. Calculus of algebraic, exponential, and logarithmic functions, with applications. No student who has received credit for 141 or 152 with a grade of C or better may subsequently receive credit for 125. Prereq: Two years of algebra and one year of geometry in high school plus satisfactory placement test score, or 119 or 130.

130 Precalculus I (4) Standard first-year course in single variable calculus, especially for students of science, engineering, mathematics, and computer science. Differential and integral calculus with applications. Prereq: Two years of algebra, a year of geometry, and half a year of trigonometry in high school. Students who did not study trigonometry in high school may take the noncredit course in trigonometry simultaneously with 130.

141-142 Calculus I, II (4,4) First course in the algebra of simultaneous linear equations and matrices. Includes Gaussian elimination, determinants, vector spaces, linear transformations, eigenvalues, and eigenvectors. Prereq: Two years of algebra and one year of geometry in high school and satisfactory placement test score, or 119 or 130.

147-148 Honors: Calculus I, II (4,4) Honors version of 141-142 for well-prepared students who are usually invited to enroll, but inquiries from other students having excellent high school mathematics backgrounds 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. Prereq: Two years of algebra, a year of geometry, and half a year of trigonometry in high school, plus satisfactory placement test scores, or 130.

171 Computer Literacy for Mathematics (3) Introduction to computers, the internet, mathematical packages and programming for prospective mathematics majors. Prereq. 141.

200 Matrix Computations (1) Introduction to matrix calculations, including determinants, eigenvalues and eigenvectors. For students in the College of Engineering and College of Business Statistics majors only. Prereq: 241 or 247. Students who have received a grade of C or better in 251 may not subsequently receive credit for 200.

201 Structure of the Number System (3) Problem solving, sets and relations, numeration systems, integers, elementary number theory, rational numbers and decimals. Prereq: Two years of algebra and one year of geometry in high school and satisfactory placement test score.

202 Probability, Statistics, and Euclidean Geometry (3) Probabilities in simple experiments, measures of central tendency and variation. Basic plan and three-space geometry, congruence and similarity, constructions with compass and straightedge, transformations, area and volume measurement. Turtle graphs. Prereq: Two years of algebra and one year of geometry in high school and satisfactory placement test score.


241 Calculus III (4) Calculus of functions in two or more dimensions. Includes solid analytic geometry, partial differentiation, multiple integration, and selected topics in vector calculus. Prereq. 142 or 148.

247 Honors: Calculus III (4) Prereq. 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, determinants, vector spaces, linear transformations, eigenvalues, and eigenvectors. Prereq. 141-142.

257 Honors: Matrix Algebra I (3) Prereq. 148 or invitation of the department.

299 Studies in Mathematics (1-3) Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

300 Introduction to Abstract Mathematics (3) Algebra of sets, functions, relations, mathematical induction, algebraic structure of the real number system, order properties, and completeness. Prereq. 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. Prereq: 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. Prereq: 241 or 247 and 300.

351 Algebra I (3) Introduction to abstract algebra, emphasizing integers and polynomial rings. Prereq: 251 or 257 and 300.

371 Numerical Algorithms (3) Development and application of fundamental algorithms for finding roots of equations, solving systems of linear equations, interpolating, fitting data using least-squares, differentiation, integration, and solving ordinary differential equations. Prereq: 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) Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

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, philosophy, art, and other areas. 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 Bachelor of Science or Master of Science 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 as used in engineering and science. Does not satisfy major requirements for a Bachelor of Science or Master of Science 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 equation 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 experiment 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-level probability 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 or consent of instructor.

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 hypothesis, Neyman-Pearson theorem; likelihood ratios; and other parametric and nonparametric 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 Advanced Calculus I, II (3,3) Introduction to algebraic structures such as groups, rings, fields, vector spaces and linear transformations. Prereq. (251 or 257) 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 neutral, 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, compactness, 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: 251 and familiarity with an operating system and a programming language (e.g., 171, 371, or Computer Science 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 work.

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 323.

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.

MECHANICAL ENGINEERING

See Engineering Mechanical.

MEDICAL TECHNOLOGY (669)

Courses are open only to qualified students who have completed the first three years of the Medical Technology curriculum.

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 techniques of antibiotic sensitivity. Gross and qualitative chemical examination of feces and methods of identification of protozoa and helminth parasites of man.

420-421 Clinical Chemistry (5,5) Clinical aspects of biochemistry, including overview of principles and instrumentation with emphasis on practical laboratory application of analytical procedures, specimen collection and handling, significance of results, and quality assurance. Includes blood gas analysis, including radioimmunoassay, and analysis of blood and other body fluids for enzymes, hormones, and other constituents of clinical interest, utilizing both automated and manual techniques, physical characteristics, detection, and use of short half-life radioactive materials for in vivo procedures such as radioimmunoassay which utilize radioisotopes.

430-431 Hematology and Clinical Microscopy (4,4) Principles, theories, and instrumentation related to qualitative and quantitative evaluation of cellular elements of blood and other body fluids; factors of hemostasis, quantitative chemical analysis of urine and renal function studies. Emphasis on microscopic identification of cells and the significance and correlation of laboratory data.


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 basic themes in the medieval experience, approached from interdisciplinary points of view and including philosophy and religion, 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. Focuses 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
211 Class Woodwind Methods II (1) Structure, use, techniques of playing, 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 III (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 (1) Structure, use, techniques of playing, care and repair of the 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 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, marching percussion trends and concepts, percussion literature and teaching 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.

241 Class String Methods II (1) Structure, use, techniques of playing, care and repair of lower 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.

250 Functional Piano for Teachers (1) Practical piano skills for the general/vocal teacher who does not have a keyboard instrument as the applied principal. Transposition, improvisation, reading, open vocal scores, simple accompaniments. May be repeated once for credit.

260 Eurhythms (1) Principles and practice of eurhythms, as developed by Emile Jaques-Dalcroze. Prereq: Consent of instructor. May be repeated once for credit. Maximum 2 hours. Letter grade only.

300 Music for Elementary Teachers (2) Singing, rhythmic activities, instrumental activities, listening, music reading, and creative activities appropriate for the elementary grades. For elementary education majors only. Prereq: Admission to Teacher Education Program. Letter grade only.

310 Conducting I (3) Basic skills of conducting: baton, time beating of traditional patterns, preparatory beat, cutoffs, cueing. Development of the left hand, fermata, subdividing. Mechanics of full score. Conducting “live” groups. Prereq: Two years of music theory or consent of instructor. Letter grade only.

320 Conducting II (2) Developing advanced baton technique. Multiple rhythms, modern beat types and their variations. Studying, analyzing and interpretation of the full score. Achieving complete physical control. Rehearsal techniques. Conducting “live” groups in advanced works. Prereq: Conducting I or consent of instructor. Letter grade only.

330 Music Methods for the Elementary School (3) Methods and materials for teaching music in elementary grades. Intended for the elementary grades. For music education majors. Prereq: Consent of instructor and admission to Teacher Education Program. Letter grade only.

340 General/Vocal Music Methods (3) School methods and materials for teaching music in the elementary, middle and high schools. Intended for the instrumental music education major. Letter grade only.

350 Field Experience in Music Education (1) Prereq: Consent of instructor and admission to Teacher Education Program. May be repeated. Maximum 3 hours. Satisfactory/No Credit grading only.

400 Student Teaching in Music (12) Full time teaching practicum in an approved public school. Prereq: admission to the teacher education program and completion of all Music Education courses required for the Bachelor of Music degree (four-year alternative) in Music Education. Coreq: Music Education 401.

401 Senior Seminar (0) Issues related to the music teaching profession as experienced in Student Teaching. Coreq: Music Education 400.

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. Prereq: 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. Prereq: Admission to Teacher Education Program and consent of instructor. 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 is completed in local public schools. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit grading only.

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 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 grading only.

210 Class Woodwind Methods I (1) Structure, use, techniques of playing, care and repair of the clarinet 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.
COURSES OF INSTRUCTION

490 Special Topics in Music Education (1-3) Prereq: Consent of instructor. May be repeated. Maximum 9 hours. Letter grade only.

493 Independent Study in Music Education (1-5) Prereq: Consent of instructor. May be repeated. Maximum 9 hours. Letter grade only.

MUSIC ENSEMBLE (708)
Prerequisite: By audition or consent of instructor.
301 Woodwind Choir (1) May be repeated.
302 Jazz-Saxophone Ensemble (1) May be repeated. Maximum 4 hours.
303 Small Jazz Ensemble (1) May be repeated. Maximum 12 hours.
304 Jazz Ensemble (1) May be repeated.
305 Studio Orchestra (1) May be repeated. Maximum 12 hours.
306 Trombone Choir (1) May be repeated.
309 Tuba Ensemble (1) May be repeated.
310 Percussion Ensemble (1) May be repeated.
311 Marimba Choir (1) May be repeated.
312 Baroque Ensemble (1) May be repeated.
315 Chamber Music Ensemble (1) May be repeated. Maximum 12 hours.
316 Steel Band (1) May be repeated.
320 UT Singers (1) May be repeated.
330 Chamber Singers (1) May be repeated.
334 Saxophone Choir (1) May be repeated.
340 Opera Theatre (1) May be repeated.
350 Concert Band (1) May be repeated.
352 Symphonic Band (1) May be repeated.
353 Wind Ensemble (1) May be repeated.
354 Pep Band (1) May be repeated.
359 Marching Band (1) May be repeated.
370 Symphony Orchestra (1) May be repeated.
380 Concert Choir (1) May be repeated.
383 Men’s Chorale (1) May be repeated.
389 Women’s Chorale (1) May be repeated.
399 Accompanying (1) May be repeated.

MUSIC GENERAL (698)
140 Fundamentals of Performance (1-2) Private instrumental or vocal study, one or two half hours per week. (1 hour credit—elective, secondary or minor; two hours credit—major.) Admission by audition. This course is designed to prepare students for enrollment in Music Performance 103-195. Cannot be used to satisfy applied music requirements at the principal level in the Bachelor of Music or the Bachelor of Arts degree in Music. May be taken for a maximum of 4 credit hours per instrument. A, B, C, No Credit. Requires payment of Applied Music fee.
200 Solo Class (0)
301 Junior Recital (0)
310 Practical Experience in Arts Management (3) Arts management practicum with approved arts organization. Individualized work with music instructor in conjunction with supervised experience in arts organization management. For music majors only. Prereq: Consent of instructor. May be repeated for credit in another area of arts management.
401 Senior Recital (0)
411 Lecture Recital (0)
421 Special Topics in Performance (1-3) Prereq: Consent of department head. May be repeated. Maximum 4 hours.
431 Special Topics in Pedagogy (1-3) Prereq: Consent of department head. May be repeated. Maximum 4 hours.
495 Sacred Music Internship (3) Observation, participation, and supervised leadership experience in the music program of an approved local church. Prereq: Senior standing in a Bachelor of Music Sacred Music Track. Satisfactory/No Credit Grading only.

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.
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, and its development and cultural dimensions to the present. Writing-emphasis course.
125 Jazz in American Culture (3) The historical study of jazz as part of American culture, including its styles, key performers, and musical practices. For non-music majors. Writing-emphasis course.
200 Introduction to Music Literature (3) Basic forms of music and accepted masterworks through chronological approach. For music majors and minors only.
210 History of Music I (3) Historical study of musical styles, practices, theories and context of European art music to 1750. Develops skills in independent research, critical thinking and expository writing. For music majors and minors. Prereq: Music History 200. Writing-emphasis course.
220 History of Music II (3) Historical study of musical styles, practices, theories, and context of European art music from 1750 to present. Develops skills in independent research, critical thinking and expository writing. For music majors and minors. Prereq: Music History 200 and 210. Writing-emphasis course.
290 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 developing listening skills.
310 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.)
330 Women in Music (3) History of women in music from the Middle Ages to present as composers, performers, educators, and patrons. (Same as Women’s Studies 330.)
340-341 Contemporary Trends in American Church Music I, II (2,2) Survey of sacred music in popular contemporary style, emphasizing analysis and evaluative criteria. Must be taken in sequence. 340 includes theory and keyboard harmony appropriate to the style. 341 includes composition and arranging within the style. Prereq: Music Theory 210-220.
350 History of Jazz (3) Origin, development, and styles of jazz music and its exponents. Cultivation of special listening techniques. Prereq: Consent of instructor. Writing-emphasis course. (Same as African and African-American Studies 350.)
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. Prereq: 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. Prereq: Consent of instructor.
410 Music History Genre (3) Topics vary. May be repeated for credit. Maximum 6 hours.
420 History of Opera (3) Dramatic, vocal, and orchestral elements in 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.
460 Music Aesthetics (3) Nature of music and musical experience, sense perception and emotions, music, and role of artist in society. Aesthetic viewpoint of individuals and historical eras through selected writings. Writing-emphasis course.
480 Music in Christian Worship (3) Hymnody, liturgies, and liturgical music.
493 Independent Study (1-15) Prereq: Consent of department head. May be repeated for credit.

MUSIC INSTRUMENTAL (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 percussion faculty and class members. Prereq: Consent of instructor.
340-350 String Literature and Pedagogy I, II (3,3) 340-Survey of string techniques, issues, research and pedagogies; topical presentations by the applied string faculty and guests. 350-Development of the violin family of instruments and bows; survey of string literature, performances, and performance styles; application of historical, analytical, and pedagogical procedures to performance. Prereq: 340 and applied enrollment in strings at 300 level or above or consent of instructor.
490 Instrumental Conducting (3) Knowledge and skills in instrumental conducting; various periods and composers and relationship of different styles to the conductor’s art; musical analysis and practice in conducting. Prereq: Music Education 320 or equivalent.

MUSIC JAZZ (711)
110 Jazz Theory (2) Fundamentals of the jazz language, including terminology, chord symbols, chord/ scales, and chord progressions, plus ear-training lab. Prereq: Music Theory 110.
120 Analysis of Jazz Styles (2) Individual improvisatory styles through analysis of their transcribed solos. 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-playing and improvisation for right hand. Must be taken in sequence.

160 Introduction to Styles in Jazz Drumming (2) Examination of major composers and performers who have contributed significantly to the creation of principal styles of jazz drumming.

210-220 Jazz Improvisation I, II (2,2) Study and application of principles of improvisation, including nomenclature, chord progressions, chord-scales, patterns, melodic development, and tune styles. Prereq: 110.

310 Jazz Composition and Arranging (2) Prereq: Consent of instructor.


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 II, III (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) Methodological and materials related to the development of principles of learning; collateral teaching experience. Must be taken in sequence.


420-430 Piano Literature I, II (3,3) 420—from 1750 to middle 19th century; 430—middle 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 present; problems of style and interpretation; pedagogical literature and methods; organ design. Prereq 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/or adult beginning piano classes, with collateral teaching experience. Prereq: Consent of instructor.

485 Suzuki Piano Method I (2) Study of the psychology, procedures, and literature of the Suzuki piano method. Must be taken in sequence. Prereq: Consent of instructor.

490-491 Internship (2,2) Opportunity for pedagogy students to gain experience in teaching beginning students under the supervision of experienced instructors. Includes weekly discussion seminars.

495 Suzuki Piano Method II (2) Study of the psychology, procedures, and literature of the Suzuki Piano Method. Prereq: Consent of instructor.

MUSIC PERFORMANCE (713)

Prerequisite: By audition only, Music General 140 or equivalent.

103-203-303-403 Flute (1-4) May be repeated.

105-205-305-405 Oboe (1-4) May be repeated.

110-210-310-410 Bassoon (1-4) May be repeated.

115-215-315-415 Clarinet (1-4) May be repeated.

120-220-320-420 Saxophone (1-4) May be repeated.

125-225-325-425 Horn (1-4) May be repeated.

130-230-330-430 Trumpet (1-4) May be repeated.

135-235-335-435 Trombone (1-4) May be repeated.

140-240-340-440 Baritone (1-4) May be repeated.

145-245-345-445 Tuba (1-4) May be repeated.

150-250-350-450 Percussion (1-4) May be repeated.

155-255-355-455 Voice (1-4) May be repeated.

160-260-360-460 Violin (1-4) May be repeated.

165-265-365-465 Viola (1-4) May be repeated.

170-270-370-470 Cello (1-4) May be repeated.

175-275-375-475 String Bass (1-4) May be repeated.

176-276-376-476 Electric Bass (1-4) May be repeated.

179-279-379-479 Guitar (1-4) May be repeated.

180-280-380-480 Piano (1-4) May be repeated.

185-285-385-485 Harpsichord (1-4) May be repeated.

190-290-390-490 Organ (1-4) May be repeated.

294-394-494 Composition (1-3) May be repeated. Prereq: Music Theory 210 and 230, grade C or higher, or consent of instructor.

295-495 Composition with Electronic Media (1-3) May be repeated. Prereq: Music Theory 210 and 230, grade C or higher, or consent of instructor.

400 Survey of Music Theory (3) Theory and analysis of music for performance. Prereq: Music Theory 110 and 120.

410 Orchestration (3) Materials of music including altered chords and analytical dictation. Prereq: Music Theory 110 and 120.

420-430 Counterpoint I, II (3,3) Species counterpoint in modal and diatonic styles with emphasis on works of Palestrina and J.S. Bach. Prereq: 220. 420—Middle of the 16th century and 430—Middle of the 17th century.

420-430 Counterpoint I, II (3,3) Species counterpoint in modal and tonal styles with emphasis on works of Palestrina and J.S. Bach. Prereq: 220. 420—Writing of contrapuntal forms of the 16th century and 430—Writing of contrapuntal forms of the 18th century.
450 Choral Arranging (2) Analysis of scores and writing of arrangements for choirs. Prereq: Music Theory 210 and 240, grade C or higher, or consent of instructor.

493 Independent Study in Music Theory (1-15) May be repeated for credit. Prereq: Consent of department head.

MUSIC VOICE (715)

110 Class Voice (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 of 4 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. Prereq: Consent of instructor. Maximum 12 hours. May be repeated for credit.

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 survey of singing diction in six languages: English, French, German, Italian, Latin and Spanish. Basic instruction in the International Phonetic Alphabet; development of basic diction skills; 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 Accompaniment.

450-460 Pedagogy I, II (2,2) 450-Concepts and approaches to teaching singing past and present for all ages of voices. 460-Vocal teaching materials: includes collateral teaching experiences. Prereq: Consent of instructor.

NUCLEAR MEDICINE TECHNOLOGY (718)

Courses in this concentration are open only to qualified students who have completed the first three years of the Nuclear Medical Technology Curriculum, described in the College of Arts and Sciences curricula section of this catalog, and who have been admitted to the Nuclear Medicine Technology Program at UTMCK.

410 Physics for Nuclear Medicine I (3) Nuclear physics, mathematics, and statistics. Survey of historic and current concepts in atomic and nuclear structure, interrelationships between matter and energy, nuclear reactions, nuclear stability, production of radionuclides, radionuclide generators, decay schemes, and charts used in nuclide identification and behavior prediction. Mathematics and statistics topics include basic arithmetic theories, mathematical manipulations, and applied technical mathematics for use in radio active decay equations, dose calculations and concentration, volume and shielding determinations. Graphing, counting, statistics and other physical and chemical applications of mathematics to nuclear medicine are included. May not be substituted for Physics 471 or 472.

411 Nuclear Instrumentation (3) Course concerns non-imaging, imaging, and instrument quality assurance. Non-imaging topics include basic radiation detectors, their applications, functions, and limitations with overview of basic electronics, gas-filled detectors, statistics and counting, solid and liquid scintillation detection systems, semiconductor and instrument stabilization, and quality control. Imaging topics are instrumentation of imaging devices including basic function, application of principles and quality control. Quality assurance units emphasis, functional and maintenance requirements of nuclear instrumentation, radiation safety practices, and statistical analysis of quality control data.

412 Radiopharmacy (2) Emphasis on radionuclide chemistry and nuclear radiopharmacy. Topics include radiopharmaceutical preparation and quality assurance, radionuclide production, and basic photographic film chemistry. Kinetics, biodistribution, and mechanisms of localization are also included, plus guidelines and regulations governing radiopharmacy management and operation.

415 Physics for Nuclear Medicine II (3) Continuation of 410 with focus on radiobiology and radiation safety. Radiobiology topics include interactions of radiation and matter, cellular and systemic responses to radiation, early and late somatic and genetic effects, biological effects of low level radiation, critical organ and dose calculations, and benefit versus risk factor. Radiation safety topics include exposure terminology, dose limit recommendations, ALARA philosophy, federal and state regulations, radiation monitoring equipment, and methods and techniques for safe practice of nuclear medicine.

420-430-440 Clinical Nuclear Medicine I, II, III (4,4,4) Theories and applications of nuclear medicine methodologies. I—Patient care, central nervous system, endocrine system; II—Myocardial and digestive system; II—hepatic and hepatobiliary system, genitourinary system, musculoskeletal system, non organ/tumor/imflamatory imaging, cardiovascular imaging, non-imaging nuclear medicine; III—single photon emission tomography, positron emission tomography, clinical quality assurance, pediatric nuclear medicine, radionuclide therapy, and management and administration of nuclear medicine programs.

425 Computer Applications in Nuclear Medicine (3) Computer systems, applications, and components in quantitation in nuclear medicine. Topics include acquisition modes and limitations, image processing modes and limitations, and image quantitation with some attention to machine and language architecture and numbering systems.

450-460-470 Clinical Practicum I, II, III (4,4,6) Clinical instruction in routine nuclear medicine procedures conducted at UTMCK and other clinical sites. Clinical instruction activities in imaging, instrumentation, radiopharmacy, dose administration, radiation safety and protection, non-imaging procedures, patient care and preparation, computer applications, radionuclide therapy, and basic administrative and management procedures.

475 Nuclear Medicine Registry Review (2) Preparation for National Registry Examination with special emphasis on film interpretation and reporting in technical critique sessions.

NURSING (720)

All upper-division nursing courses except 314, 351, 406, and 480 are restricted to students who have progressed into the major. See Progression Policies and Procedures.

201 Intro to Nursing (2) Introduction to Nursing (3) History, philosophy, and scope of nursing practice with emphasis on the holistic person, standards for professional practice, and an overview of the professional nursing process and nursing theories. Prereq: Application for progression to Nursing major.

202 Health and Culture (3) An exploration of the beliefs and practices of various cultural groups within the United States in relation to health, illness and the health care delivery system. Implications for the helping professions are examined. This course has no prerequisites and is open to all UT undergraduate students.

305 Transitions to Professional Nursing (5) Builds on the knowledge base and experience of RNs in transition to professional nursing. Focuses on the conceptual foundations of nursing practice and issues in health care delivery. For RNs only. 4 lecture, 1 lab.

311 Foundations of Professional Nursing Practice (5) Emphasizes on patient centered care, therapeutic interventions, and critical thinking as key elements in the use of the nursing process. Clinical laboratory experiences provide opportunity for the application of these processes in the care of adults in selected health care settings. 2 lecture, 3 lab.

314 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 potential longevity. Process of lifestyle changes will be facilitated by faculty. Open to undergraduates in all colleges.

319 Pathophysiology of Health Deviations (4) Application of physiological concepts to health promotion, maintenance, deviations, and restoration. Introduction to psychoneuroimmunology. Emphasis on interactions of body systems, and impact of disease processes on the human body.

333 Health Assessment (3) Theory and laboratory practice 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.

341 Health Promotion (3) Introduction to health promotion concepts and nursing interventions for health promotion and disease prevention.

351 Pharmacology I (2) Biochemical and pharmacological effects of therapeutic drugs on the human body. Basic concepts of drug action and interactions. Major drug classifications. Prereq: Chemistry 100-110, and at least 6 semester hours of Anatomy and Physiology.

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, 3 lab.

371 Professional Leadership Issues (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 building to support safe client care. Prereq: 311, 341 or RN status.

382 Health Promotion and Maintenance in Community (4) Focus on nursing care at risk populations. Design and implement interventions to promote and maintain health. Includes assessment of socio-cultural values, environmental factors, health education, and community resources. Prereq: 311, 319, 333, 341, or RN status. Coreq: Coreq or Coreq: 351, 361.

386 Health Promotion and Maintenance in Child Bearing Families (5) Nursing practice for progression to Nursing major. Prereq: Consent of instructor.

400 Aging and Society (3) An examination of the health and social effects of longevity and the aging process including societal and personal attitudes about age old. Resources, trends, issues, and potentials of aging are explored. Volunteer community service, a service learning component, is required. Open to undergraduate students in all colleges.

402 Gerontology Practicum (3) Off-campus supervised experience in gerontology. A minimum of 40 practicum hours is required. Offered as part of the gerontology minor. Open to seniors in all colleges. Prereq: Consent of instructor.

403 Health Promotion and Maintenance in Child Bearing Families (5) Nursing practice for progression to Nursing major. Prereq: Consent of instructor.

415 Family/Community Health Nursing (6) Application of the nursing process to individuals, families, groups in the childbearing/rearing stages of development. Clinical experiences are provided in a variety of hospital and community settings. 3 lecture, 3 lab.

435 Family Health Nursing (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: 351.

445 Family/Community Health Nursing (6) Application of the nursing process to individuals, families, groups in the childbearing/rearing stages of development. Clinical experiences are provided in a variety of hospital and community settings. 3 lecture, 3 lab.

Prereq: All 300-level nursing courses. For non-nurse MSN students only.
421 Mental Health Maintenance and Restoration (4) Nursing to support and 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.

423 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 process.

442 Directed Clinical Practice in Community Health Nursing (1) Clinical practice in a community health setting. For RN Master’s Entry students only. Prereq or Coreq: 452.


452 Professional Leadership Issues III (2) Legal and regulatory processes affecting nursing practice; analysis and application of personal and professional values. Application of the concepts of group dynamics and team work issues having an impact on nursing practice. Prereq: All required 300-level nursing courses and 451.

461 Health Restoration Across the Life Span (5) Focus on nursing practice for health restoration with children, adults, and their families with acute, complex health needs. Emphasis on quality of care, coordination of care, and end-of-life care. Prereq: All required 300-level nursing courses. 3 lecture, 2 lab.

470 Special Topics (1-3) In-depth study of selected nursing topics, problems, or issues not covered in other courses. Topics determined by faculty and student interest. Prereq: Consent of instructor.

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, or RN status.

480 Nursing Informatics I (3) Provides opportunity for nursing students and/or registered nurses to explore 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. 2 lecture, 1 lab. Prereq: Upper division 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. Prereq or Coreq: 319. 2 lecture, 2 lab.

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: 406 and 451. Prereq or Coreq: 403, 421, 471, 461, 482 or RN Status. 1 lecture, 3 lab.

491 International Studies (1-3) Participation in selected health and nursing care in foreign countries. Requires consent of instructor.

493 Independent Study (1-3) Nursing or health-related topic not covered in other nursing courses. Prereq: Senior standing or consent of instructor.

NUTRITION (726)

100 Introductory Nutrition (3) Nutritional concepts; current consumer issues in nutrition; nutritional needs of the life cycle; international nutrition; personal and professional issues. A nutrition major who has received credit for NTR 300 may not receive credit for this course.

102 Microcomputer Applications (3) (Same as HRA 102, CTS 102, RCS 102.)

104 Sports Nutrition for Athletes (1) Nutritional concepts focusing on the optimal training diet; balancing energy with activity; positive fueling before, during, and after sports events; sorting out nutritional supplements.

201 Careers in Nutrition (1) Overview of nutrition-related careers. Routes to meeting academic, registration, and experience 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: Biochemistry and Cellular and Molecular Biology 230. A nutrition major who has received credit for 100 may not receive credit for this course.

302 Life Span Nutrition (3) Physiological development and psychosocial factors that influence nutrient needs and nutrition behaviors of individuals across the life span. Nutrition education strategies for various age groups. Prereq: 100, Biochemistry and Cellular and Molecular Biology 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 dietetic practice; human resource policies and strategies applied to foodservice systems management.

310 Physiological Chemistry (4) (Same as Biochemistry and Cellular and Molecular Biology 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: Microbiology 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, Biochemistry and Cellular and Molecular Biology 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 Dietetics (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; relationship 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.


420 Food and Nutritional Analysis (4) Principles, procedures, and instrumentation for analysis of food and body fluids. Interpretation of chemical, dietary, and anthropometric data analysis in nutrition research. Prereq. 100, 310.

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.

490 Introduction to the Dietetic Internship (3) Applications of clinical, food service, and management theories to dietetic practice. Restricted to Dietetic Internship students.

492 Field Experience: Nutrition (1-3) Prereq: Junior or Senior standing, consent of instructor. Satisfactory/No Credit grading only.

493 Directed Study: Nutrition (1-3) Individual student: faculty experience. Prereq: Junior or senior standing, consent of instructor. Letter grade only.

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, design, and inference 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 Ockam. 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.

328 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); and others. Writing-emphasis course.

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.)

382 Philosophy of Feminism (3) Various feminist theories and their application to social issues of concern to women today. Writing- emphasis course. (Same as Women’s Studies 382.)

390 Philosophical Foundations of Democracy (3) Philosophical problems relating to the nature and justification of the central values, principles, and concepts of democratic society. Writing-emphasis course.

392 Philosophy of Law (3) A course in analytic and normative jurisprudence. Such topics as the nature of legal systems as normative social practices, the relationships between law and morality, theories of adjudication and legal reasoning, the justification of punishment, theories of legal responsibility, law and economics, and feminist and neo Marxist critiques of law. Writing-emphasis course. (Same as Legal Studies 392.)

395 Existentialism (3) Themes related to freedom and finitude in the tradition that begins with Kierkegaard and Nietzsche, and extends to Heidegger and Jaspers, Sartre and Merleau- Ponty.

400 Special Topics (3) When content varies, may be repeated. Maximum 6 hours.

411 Modern Religious Philosophies (3) (Same as Religious Studies 411.)

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

420 Topics in History of Philosophy (3) One or more figures or movements from antiquity through mid-twentieth century. Prereq: 6 hours of philosophy or consent of instructor. When content varies, may be repeated. Maximum 9 hours.

435 Intermediate Formal Logic (3) Metatheory of formal logic and philosophy of logic. Prereq: 135 or consent of instructor.

440 Contemporary Ethical Theory (3) Topics in meta-ethics or ethics. Prereq: 6 hours of philosophy or consent of instructor.

446 Theoretical Issues in Medical Ethics (3) Prereq: 240 or 345 or consent of instructor.

462 Philosophy of Biology (3) An introduction to current issues in the Philosophy of Biology. Specific problems vary, but will likely include: the nature of natural selection, adaptation, and fitness; the level of selection debate; the nature of species; the interaction of environment and organism, and others. Prereq: upper-division coursework in philosophy or biology or permission of instructor.

472 Philosophy of Language (3) Problems of meaning, reference and truth. What is the relation between words and the world? How do sentences manage to be about the world? What is it for something to be true? Prereq: 3 philosophy courses 200 level or above.

473 Philosophy of Mind (3) Problems of mind and body in relation to consciousness and personal identity. Prereq: 6 hours of philosophy or consent of instructor.

479 Studies in Recent Continental Philosophy (3) Selected thinkers or topics from areas such as Existentialism, Phenomenology, Hermeneutics, Structuralism, Post-Structuralism. Prereq: 6 hours of philosophy or consent of instructor. When content varies, may be repeated. Maximum 6 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

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. Satisfactory/No Credit grading or letter grade.

202 Badminton (1) Fundamental badminton technique, game strategy, and rules for singles and doubles play.

205 Bowling (1) Introduction to ball selection, approach, spot bowling, rules, striking, 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 jiu jitsu, judo, karate, and tai chi. When content varies, may be repeated. Maximum 6 hours.

224 Physical Fitness: Conditioning (1) Program of flexibility, strength, and cardiovascular endurance through exposure to various exercise forms.

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 begin a fitness program: includes measurement and interpretation of fitness components, including body composition, cardiorespiratory 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 of ground strokes 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.

250 Volleyball I (1) Introduction to individual and team fundamentals, rules, and strategy.

252 Weight Training (1) Introduction to the principles of strength development for large 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.

256 Lifeguarding Training (2) American Red Cross lifeguarding and aquatic management techniques. ARC certification. Prereq: Swim test second day of class.

259 Snow Skimming (1) Development of skills necessary to balance, walk and slide while on skis. 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 science. Examines familiar objects of everyday experience and leads to an understanding of the physical principles that makes them work.


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.

420 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 single particle systems, rotating referencing systems. 312—Many body systems, rigid bodies, Lagrangian and Hamiltonian formalisms, inverse dynamics and transfer matrix, rigid body dynamics. Must be taken in sequence. Prereq: For 311: 136 or 138 or 231 Computer Science 102. Coreq: For 312: Mathematics 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 systems, operation amplifiers, digital-to-analog and analog-to-digital conversion, use of standard laboratory instruments, and applications of microcomputers. 362—Advanced instrumentation techniques applied to the study of electronic circuits as dynamic physical systems, feedback and stability, noise, discrete sampling, Fourier analysis and synthesis, nonlinear circuit dynamics. Prereq: 136 or 138 or 232. 6 hours lab per week.

401 A Survey of Physics (3) A survey of physics from earliest times to the present, emphasizing the unifying philosophical and mathematical principles. Classical theories of gravitation, electromagnetism, and relativity; various forms of quantum mechanics, quantum electrodynamics, and recent theories of particles, fields, and their interactions. Consideration of the effects of physics on modern society and the practice of physics from a science-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.

411-412 Introduction to Quantum Mechanics (3,3) Fundamental principles of quantum mechanics and methods of calculation. Solution of the Schrödinger equation for simple systems. Application to atomic, molecular, nuclear, and condensed matter physics. Must be taken in sequence. Prereq. 240 or equivalent, Mathematics 435.

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 1560R 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, electromagnetic waves and 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 discussion of the fundamental concepts of 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. Thorough quantum mechanical interpretation of the results and preparation of scientific reports. Prereq. 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.

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 of planning with special attention to the United States experience in urban and other levels of planning. State of the art, the process, the concept of open space, implementation of land use, current trends. Prereq. 220, or consent of instructor.


256 COURSES OF INSTRUCTION

PLANT SCIENCES AND LANDSCAPE SYSTEMS (790)

110 Introduction to Ornamental Horticulture (3) Survey of the history, science, crafts, professions, and businesses of ornamental horticulture. Prereq: Enrollment is restricted to 401/SPEN 310/SPEN 310H or equivalent, and transfer students only. Must be taken for credit.

120 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. 2 hours and 1 lab.

220 Interior Plantscaping (3) History and introduction of the interior plantscaping field including, identification, use of plants for the commercial interior plantscaping. Management of the interior environment including light, humidity, growth media, insects, and diseases. Commercial use of containers, plants, water features, and artificial plants. Prereq. 110 or consent of instructor.

321 Interior Plantscaping II (3) Commercial application of design, sales, sales proposals, plant management, and basic plantscaping business management for the Interior Plantscaping industry. Prereq. 230 or consent of instructor.

235 Introduction to Crop Science (3) Introduction to world crops and food production systems. Emphasis on production terminology, origin and development, environmental interactions, plants and human nutrition, ecological processes of sustainability, current technology, and practices of crop production. Prereq: One year biological science. 2 hours lecture and one 2-hour lab.

280 Fundamentals of Landscape Design (3) History of landscape design as it relates to contemporary applications. Awareness and sensitivity to the landscape; basic graphic skills and design theory with an emphasis on historical and contemporary landscape design. Introduction to landform, landscape materials, and planting design. 1 hour and 2 labs.

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 the instructor.

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.

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.

340 Turfgrass Management (3) Practical turfgrass management; cultivar selection, identification, and establishment; basic applied fertility 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.

350 Basic Landscape Construction (3) Basic materials and detailing. Introduction to the landscape construction and contracting industry; application of landscape materials, wood, concrete and masonry construction; site drainage, and landscape grading. Prereq. 280. 2 hours lecture and 1 lab.

360 Practicum in Landscape Construction (3) Practical experience in implementation of landscape development projects. Directed lab and field instruction in planting operations and basic landscape construction including interpreting and implementing landscape drawings and specifications. Prereq. 350. Two three hour labs.

370 Grounds Maintenance (3) Identification and understanding of maintenance tasks; transplanting, soil amendments, growth control, irrigation, climate protection and pest control. Maintenance and use of equipment; management practices. 2 hours and 1 lab.


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.

391 Winter/Herbaceous Ornamental Plants (3) Identification, culture, and landscape use of Spring and early spring herbaceous ornamental plants including annuals, perennials, herbs, bulbs and wildflowers. Basic gardening practices and design elements using such herbaceous ornamental plants. Prereq. 110 or consent of instructor.

410 Nursery Management and Production (3) Management methods as applied to retail and wholesale nurseries and landscape contracting firms. Methods of producing liners, container and field-grown woody ornamental plants. Prereq. 220, 330, and Environmental and Soil Sciences 210. 2 hours and 1 lab.

411 Native Plants in the Landscape (2) Native plants and plant communities as a basis for landscaping and environmental restoration. Weekly lecture coupled with either an outing or service practicum of invasive exotic plant removals 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. 220, Botany 330 or consent of instructor.

427 Management and Administration of Public Horticulture Institutions (3) Management of resources in non-profit institutions, support organizations and communities. Theoretical framework and institutional mission; strategic planning and programming; financing, capital improvements, development and fund raising; personal and organizational policies; volunteer development; marketing and publicity; legal issues; relationships between staff and governing boards; the use of information technology in management and governance systems; and conservation/preservation roles in community development. Prereq. 326.

429 Field Study of Public Horticulture Institutions (3) Extended 10-12 day field study of various public horticulture institutions such as botanical gardens, arboretums, historical grounds, zoos, conservatories, cemeteries, and nature preserves. Application and travel fee required. Prereq. 326.
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.

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 seeding to harvesting and handling. Interactions of crops with their environment and sustainable agroecosystems. Prereq: 230. 2 hours lecture and 1/2-hour lab.

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.

434 Fruit and Vegetable Crops (3) Principles of production systems to counter environmental stresses and to increase productivity of warm and cool season vegetable crops, small fruit crops, and deciduous tree fruit crops. Storage of crops after harvest. Prereq: 230. 2 hours lecture and 1 lab.

455 Field and Forage Crops (3) Agronomic principles of crop production and management. Crop improvement, cropping systems, tillage, fertilization, pest management, harvest and utilization of major field and forage crops. Prereq: 230. 2 hours and 1 lab.

463 Plant and Garden Photography (2) Principles and techniques of photography as they relate to plants and gardens. Study of equipment functions and field shooting under various weather conditions and in different seasons. Prereq: Senior standing and consent of the instructor.

473 Public Garden Operations and Management (3) Analysis of year-round operations and management of public gardens. Case studies involving time and labor management, budgeting, financial management, implementation of volunteer programs, information dissemination methods for public outreach, management of grounds and facilities using the University of Tennessee Institute of Agriculture Gardens as a model. Prereq: 326.

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. 2.3-hour labs.

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 LANDCADD software. Prereq: 280, 380, and Agriculture and Natural Resources 290.

490 Seminar (1) Current topics in horticulture, crop sciences, and landscape design. Prereq: Senior Standing.

492 Internship in Horticultural and Plant Sciences (1-3) Supervised work experience with a departmentally-approved employer within the ornamental horticulture, turfgrass production horticulture, or field crop science industry. May be repeated. Maximum of 6 credits.

493 Problems in Horticultural and Plant Sciences (1-3) Supervised individual problems relating to field plant sciences landscape design, Master's degree. May be repeated. Maximum of 6 credits.

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 media, brochure design using desktop publishing, slide show development, oral presentations, and video usage for educational and informational presentations in Ornamental Horticulture. Prereq: Agriculture and Natural Resources 290 and senior standing.

POLITICAL SCIENCE (801)

101 United States Government and Politics (3) Introduction to fundamental institutions 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 exploration of the American political system 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 the role of film, television, fiction, 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 change with primary focus on developing areas. Writing-emphasis course.

361 Politics in Western Democracies (3) Political culture patterns, and institutions of Western democratic systems. Writing-emphasis course.

365 Introduction to International Relations (3) Resource availability, international economics, international security and peace (imperialism, war, 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.

370 Contemporary International Problems (3) Analysis of current international events.

374 American Political Thought (3) Major themes and ideas in American political thought related to the development of American political institutions, values, and practices. Writing-emphasis course.

387-388 Junior Honors Seminar (3,3) Required of honors majors; admission with consent of department.

401 Political Analysis (3) Nature, character, and functions of research design, data collection, and statistical techniques used in the study of politics. (Same as Legal Studies 401.)

410 Special Topics in Political Science (3) May be repeated with consent of department. Maximum 6 hours.


420 Political Attitudes and Behavior (3) Systematic examination of political attitudes, public opinion and political behavior. (Same as American Studies 420.)

421 Political Parties and Interest Groups (3) Analysis of political parties, interest groups, campaigns and elections.

430 United States Constitutional Law: Sources of Power and Restraint (3) Judicial review, constitutional powers of the President and Congress, federalism, sources of regulatory authority, and constitutional protection of political and economic rights. (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 substantive and procedural law in relation to the criminal justice field with emphasis on constitutional questions and public policy issues. (Same as Legal Studies 435.)

440 Public Management and Human Resources (3) Semester long simulation of a public organization in which student groups plan, organize, direct, teach and evaluate within a tightly structured framework.

441 Public Budgeting (3) The process, participants, and politics of government budgeting, with 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 nations. 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) The politics of international economics. Topics include globalization, development, trade, crime, the IMF, the WTO, the environment and challenges to the status quo.

473 Negotiation, Bargaining and Diplomacy (3) Diplomacy, negotiation, and foreign policy decision-making. Theories of diplomacy and negotiation are applied in a simulation focusing on issues from international crime and global economic stability to world health and the environment.

474 International Organization (3) Constitutional framework and key functions of the United Nations. Topics include collective security, peacekeeping, human rights, development, regional organizations, and the role of the Secretary-General.

475 Ancient and Medieval Political Thought (3) Major western political thinkers from Socrates to Marsilio of Padua. (Same as Medieval Studies 475.)

476 Modern Political Thought (3) Major western political thinkers from Machiavelli to Marx.

478-488 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. Satisfactory/No Credit grading only.

493-432 Topics in the Literature and 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. Satisfactory/No Credit grading 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.

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.

210 Biological Basis of Behavior (3) Survey of theories and research concerning the role of genetic factors, nervous and endocrine systems, and other biological influences on behavior. Prereq: 110.


295 Research Analysis in Psychology (3) An introduction to the research methods and data analyses used in psychological research. This course should be taken as soon as possible after declaring psychology a major. Prerequisite: 110.

300 Child Psychology (3) The normal child from conception through infancy, childhood, and adolescence. Physical, cognitive, social, and emotional development. Prereq: 110.

310 Learning and Thinking (3) Survey of theory and findings of research concerning both humans and nonhumans. Prereq: 110.

320 Motivation (3) Survey of theories and related research; discussion of applications. Prereq: 110.


347 Honors Seminar (1) Classic works in psychology; professional and ethical issues in psychology; presentations of faculty scholarship and honors students’ projects. Meets weekly. Prereq: Consent of instructor. May be repeated. Maximum 8 hours.

360 Social Psychology (3) Theories, methods, and findings of research concerning individual behavior in a social context. Prereq: 110.

367 Psychology Honors Project (3) Independent study course which leads to the Honors thesis. Students must have plans of study approved by their mentor prior to enrollment. Prereq: Consent of instructor. Satisfactory/No Credit grading only. May be repeated. Maximum 15 hours.

370 Ethology and Sociology (3) (Same as Ecology and Evolutionary Biology 370).

382 Contemporary Topical 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.

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 Mathematics 115 or Statistics 201.

395 Methods of Research in Psychology (3) Approaches and recent developments. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. Psych 385 or Math 115 or Statistics 201 or Graduate standing.

410 cinnamon 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 elective. May be repeated.

400 Cognitive Psychology: Language and Symbolic Processes (3) Psychology of knowing, explaining, and understanding. Directed and associative thinking, memory, problem-solving, and concept acquisition. Nature, use, and development of language. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor.

409 Group Facilitation (3) Study of theory and technique through supervised experience in small groups. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. May be repeated. Maximum 6 hours.

410 Sensory Processes and Perception (3) Psychological and physiological 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 Graduate standing.

415 Psychology of Religion (3) History of the psychology of religion with an examination of 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. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor or graduate standing.

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 and stereotypes for behavior and experience. 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 psychological measurement. Statistical methods in measurement. Surveying of existing tests. Prereq: 110, Psych 385 or Math 115 or Statistics 201 and Junior standing (60 semester hours) or consent of instructor.


459 Comparative Animal Behavior (3) (Same as Ecology and Evolutionary Biology 450.)

459 Comparative Animal Behavior Laboratory (3) Coreq: 450. (Same as Ecology and Evolutionary Biology 459.)

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 and 102, Biology 130 and 140, Anthropology 110 and 210.

467 Psychology Honors Thesis (3) Independent study for writing and oral defense of Honors thesis. Prereq: consent of instructor. Satisfactory/No Credit grading only.

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.

475 Adolescence Development (3) Theoretical perspectives and empirical research findings pertinent to adolescent development. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor.

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.

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. 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.

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 humankind. Exploration of historical development, scientific evolution, and larger social context. Prereq: Senior standing (90 semester hours).

PUBLIC RELATIONS (841)

270 Public Relations Principles (3) Theories and principles of public relations. Overview of student relations in management of government, institutions and organizations. Brief case studies and public relations projects. Prereq: 270 or Advertising 250, and Journalism 200, or consent of instructor.

320 Public Relations Communication (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 student relations. Prereq: 270 or Advertising 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 forms 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.

491 Foreign Study (1-15) Advance approval of hours and topics by 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 public relations. May be repeated for a maximum of 4 credit hours. Prereq: 320, senior standing, and consent of instructor. Satisfactory/No Credit grading only.

493 Independent Study (3) May be repeated for maximum of 6 hours. Prereq: Consent of instructor.

READING EDUCATION (847)

329 Teaching Developmental Reading in the Elementary and Middle Schools (3) Methods and background on how to teach word recognition skills, comprehension, study skills, and how to use materials. Includes units on phonics, evaluation, and basal readers. For BS Education students only. Prereq: Admission to Teacher Education Program.

430 Elementary and Middle School Developmental Reading Instruction (2) Word recognition (including phonics), comprehension, evaluation, and materials. Not open to students who have had recent course in reading methods. Prereq: Admission to Teacher Education Program.

434 Topics in Reading Education (1-6) May be repeated. Maximum 6 hours. Prereq: Admission to Teacher Education Program or a course in Reading Education.

440 Literacy Instruction in the Middle Grades (2) Problems and issues particular to teaching reading in the middle grades including teaching reading in an integrated curriculum, dealing with students reading below grade level, and teaching concept vocabulary.

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.

RECREATION AND LEISURE STUDIES (853)

201 Leisure Foundations and Leadership (4) Introduction to the field of leisure, recreation, and leisure focusing on understanding concepts, philosophies, and professional practices in the leisure service industry. Theories and practices of recreation leadership.

290 Practicum in Recreation and Leisure Studies (2-3) Supervised practice in approved agencies offering programs in recreation and tourism. Each hour of credit requires 40 clock hours of work. For majors only Prereq: Permission of instructor. Satisfactory/No Credit grading only.

310 Development and Evaluation of Recreation and Leisure Programs (3) Essential elements and principles in the organization, administration, marketing, and evaluation of various types of recreation 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: 201, Junior standing, GPA required for admission to major.

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, and role of leisure in social inclusion. Prereq: Consent of instructor.

325 Therapeutic Recreation and Lifestyle Planning (3) Emphasis on how therapeutic recreation specialists can use the application of healthy lifestyle principles as a treatment modality. Importance and role of recreation/leisure participation (honor, stress-management, self-responsibility, fitness) in planning and delivery of therapeutic recreation service for individuals with disabilities. Prereq: Consent of instructor.

390 Practicum in Recreation and Leisure Studies (2-3) Supervised practice in approved agencies offering career opportunities in recreation. Each hour of credit requires 40 clock hours of work. Only for majors in Recreation and Leisure Studies. Prereq: 290 and permission of instructor. Satisfactory/No Credit grading only.

410 Management Concepts of Recreation, Leisure and Sport Programs (3) Principles for operationalizing recreation, leisure and sport related programs. Units address utilizing research as a management tool, assessing program cost, facility utilization and evaluation and contemporary management concepts. Prereq: 201, 310, or consent of instructor.
405 Modern Jewish Thought (3) History, culture, and geography of the now Israeli portion of the Levant from 1850 to present. The founding of the modern state of Israel in 1948 and the political complexities of the Middle East. Israeli culture and literature. Writing-emphasis course. (Same as Judaic Studies 405.)

411 Modern Religious Philosophies (3) Religious implications of major Western thinkers and movements from Nicolas of Cusa to the nineteenth century German Idealists. (Same as Philosophy 411.)

412 Classical Indian Systems of Philosophy: The Moksha Tradition (3) Selected writings and philosophical problems of the traditions of Samkhya, Yoga, Vedanta, Buddhism, Jainaism. Prereq: 374 or 376 or consent of instructor.

415 Psychology of Religion (3) (Same as Psychology 415.)

425 Seminar in Western Religions (3) Selected figures, themes, movements, and problems. Prereq: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

430 Seminar in American Religion (3) Selected figures, themes, movements, and problems. Prereq: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

440 Seminar in Comparative Religion (3) Selected figures, themes, movements, and problems. Prereq: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

474 Modern and Contemporary South Asian Religion (3) Religion in India during the Islamic and European colonial periods and in independent India. May include such topics as the development of vernacular forms of Hinduism; Hindu interactions with other religions; the Indian Freedom Movement and Gandhi; women and tradition; religion, secularism, and politics in independent India; and religion and caste in the new India. Writing-emphasis course. Prereq: Religious Studies 374 or Philosophy 374.

490 Readings and Research in Religious Studies (3) 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)

499 Proseminar in Religious Studies (3) For advanced students in Religious Studies; required for majors. Selected topics, e.g., nature and function of myth in religion, problem of evil, transcendence, theories of religion, hermeneutics, integrating various disciplines involved in study of religion. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

RETAIL AND CONSUMER SCIENCES (865)

102 Microcomputer Applications (3) Introduction to Microcomputer use and five software programs: operating systems, word processing systems, data base systems, spreadsheets programs and graphics programs; design of a management information system; spreadsheets, word processing, and database. Prereq: Declared major in College of Human Ecology. Satisfactory/No Credit grading. (Same as HRA 102, CFS 102, Nutrition 102.)

119 Introduction to the Service Industry (3) (Same as HRA 119.)

210 Introduction to Retail Management (3) Development and overview of retailing related businesses and industries, and the activities involved in the delivery of goods and services to the consumer. Coreq/Prereq 119.

310 Retail Buying (4) Analysis of the merchandise buying function within different types of retail organizations and structures. Application of principles associated with retail buying. Computer simulations. 3 hours and 1 discussion/lab. Prereq: 102 or equivalent, 210, Accounting 202.

311 Developing the Service Workforce (3) (Same as HRA 311.)

312 Leadership in the Service Marketplace (3) (Same as HRA 312.)

320 Apparel Product Development (3) Concepts of apparel product development from the retailer’s perspective. Understanding of basic textile and design principles, specification writing, line building, and brand management to develop apparel products for target markets.

341 Family and Consumer Behavior (3) Understanding of behavior of individual and family, demographics, family life cycle, family dynamics and roles, cultural and ethnic influences, and individual and family decision making.

346 Retail Operations Management (3) Analysis of retail operations in terms of organizational structure, logistics and distribution, growth opportunities and productivity.


360 Issues and Trends in Customer Service (3) Building competencies in providing outstanding customer service in retail organizations. This course will create a unified approach to customer service, recognizing the importance of store environment planning, organizational policies and internal marketing that will lead to increased business by attracting and retaining desired customers. Prereq: 210.

376 Strategies for Growth (3) (Same as HRA 376.)

390 Professional Development (2) (Same as HRA 390.)

410 Strategic Retail Planning (3) Retail Management from a strategic planning perspective: development and implementation of retail strategy from financial, operational, and customer orientation. Prereq: 376, 422.

411 Entrepreneurship and Small Business Management (3) Concepts of entrepreneurship within single ownership and other business organizations; development of a business plan; management of a small business; current issues and problems. Prereq: 210, Marketing 300, Accounting 202.

412 Direct Retail Methods (3) Issues concerning the use of direct selling methods to sell goods and services. Emphasizes analysis of consumers and product/service types for integrated direct retail methods. The direct retailing methods in this course include direct mail, catalogs, telemarketing, infomercials, and electronic commerce (internet). Prereq: 210, Marketing 300.

415 Retail Promotion (3) In-store promotional activities; development of retail promotion strategies; evaluation of retail promotions; supplementary focus on advertising and other methods to communicate in-store promotions. Prereq: 210, Marketing 300.

421 International Retail Environments (3) The study and analysis of retailing in an international and global setting. Retail processes, practices and issues within international environments—cultural, economic, social, political, legal and business. Prereq: 210, Marketing 300.

422 Professional Experience in Retail and Consumer Sciences (6) Supervised educational experiences in selected retail and consumer sciences service operations. Prereq: Progression into the program and 310, 390.

425 Legal Issues in Service Management (3) (Same as HRA 425.)

482 Professional Experience in Retailing II (6) Supervised professional experience in selected retail operations that build upon first professional experience. Prereq: 410, 422.

485 Managerial Issues in Retail Operations (3) Managerial problem solving involving staffing and retention of personnel, conflict resolution, financial analysis, and crisis management. Coreq: 482 or 492. Prereq: 410.

492 Management Experience in Retailing (9) Supervised managerial training with sponsoring retail operations. Prereq: 410, 422.

493 Directed Study (1-3) Individual problems for junior and senior students with special interests in retail and consumer sciences. Prereq: Junior or senior standing and consent of the instructor.

495 Special Topics (3) Topics in retail and consumer sciences. Prereq: Junior or senior standing and consent of the instructor. May be repeated. Maximum 9 hours.

497-498 Honors: Retail and Consumer Sciences (1-3) Individual problems for Junior and Senior students showing special ability and interest in retail and consumer sciences. Prereq: Recommendation of department head.

RURAL AND ENVIRONMENTAL SCIENCES (880)

380 Rural Sociology (3) Topics include the analysis of U. S. land tenure systems, agricultural regions, rural minorities, Amish, farmer organizations, rural institutions, community decision making, local government, rural policy issues, rural industrialization, food policy, and cross-cultural analysis. Prereq: Sophomore standing. (Same as Sociology 380.)

480 Technological and Community Change (3) Analysis of communication processes whereby new technology spreads within a farm population and analysis of social institutions related to change in rural communities. Prereq: 380 or consent of instructor. (Same as Sociology 480.)

RUSSIAN (886)

101-102 Elementary Russian (4.4) Must be taken in sequence.

199 Russian Language and World Business (2) 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.

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: 988-1861 (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 Modern Russian Culture through Readings and Dramatic Production (3) A survey of Russian culture from the era of Great Reforms of the 1860s through modern times, supplanted by participation in a dramatic production. Texts in English translation; some texts in Russian for Russian majors. 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. Particular attention given to the author’s philosophical views and the contact between his
COURSES OF INSTRUCTION

262

science and his art. In English; readings in Russian for majors. Writing emphasis course.
425 Introduction to Descriptive Linguistics (3) (Same as French 425, German 425, Spanish 425, and Linguistics 425.)
426 Methods of Historical Linguistics (3) (Same as French 426, German 426, Spanish 426, and Linguistics 426.)
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 and World Business Director. For Language and World Business majors only. Satisfactory/No Credit grading only.
491 Foreign Study (1-15) Prereq: Consent of instructor.
492 Off-Campus Study (1-15) Prereq: Consent of instructor.
493 Independent Study (1-15) Prereq: Consent of instructor.

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 interrelationship in sports injury and control; risk-taking and decision 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 worksite, school, community, transportation, and industrial settings. Junior/senior standing or consent of instructor.
460 Fire Risk Management (3) Provides the knowledge and skills necessary to develop, implement, and manage a comprehensive fire safety program. Incorporates basic fire risk management concepts, interpretation of codes, and an exposure to basic fire 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.

SOCIAL SCIENCES/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.

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.
250 Social Welfare (3) Development, structure and function of the social welfare institution. Analysis of social welfare programs and impact of the institution on society.
312 Social Work Practice I (3) Knowledge, values, and skills for entry level generalist practice in a variety of settings. The social work problem solving process, different size client systems; ethical decisions; assumptions; and the worker's role in environment configuration. Concurrent skills laboratory. Prereq: Initial progression. Coreq: 314.
314 Human Behavior and the Social Environment (3) Interrelatedness of biological, social, cultural, environmental and psychological factors in human behavior. Person-in-environment over the life span with special attention to diversity, impact of racism, sexism, and other sociocultural factors. Integration of knowledge into a social work practice perspective. Prereq: Initial progression. Coreq: 312.
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 understanding of the impact of oppression on diverse groups. Prereq: Initial progression. Coreq: 310, 313, 380.
380 Field Practice in Social Work I (3) Eight-hour-per-week, supervised field experience with practice situations for developing professional skills, values and attitudes. Concurrent seminar focuses on integration of knowledge with practice experiences. Prereq: Initial progression. Coreq: 310, 313, 316.
412 Social Work Practice III (3) Generalist practice with emphasis on groups and communities, including treatment theories, techniques, and issues. Prereq: Full progression. Coreq: 416 and 480.
460 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: 481.
480-481 Field Practice in Social Work II, III (6, 6) Sixteen-hour-per-week supervised agency field practicum for integration of theory and practice and critical examination of oneself as a professional helping person. Concurrent field seminar on integration of knowledge with practice experiences. Prereq: Full progression.
491 Foreign Study (1-15) Prereq: Consent of instructor.
492 Off-Campus Study (1-15) Prereq: Consent of instructor.
493 Independent Study (1-15) Prereq: Consent of instructor.

SOCIOLOGY (915)

110 Social Problems and Social Change (3) Increasingly acute and intense problems such as alcoholism, violence, crime, inequality, lifestyle preferences, and environmental abuse within the context of social change. Assessment of control strategies.
117 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.
120 General Sociology (3) Major concepts and theoretical approaches of sociology with emphasis on culture, socialization, social organization, and social stratification.
127 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.
232 Varieties of Religious Community (3) (Same as Religious Studies 232.)
250 Introduction to Global Studies (3) Exploration of how globalization is fostering change in culture, politics, economics, philosophy, and the environment. Uses interdisciplinary perspectives to understand the relationship between historic processes and the contemporary world, and the reciprocal influences of local dynamics and global change.
291 Sport in American Society (3) (Same as Sport Studies 291.)
310 American Society (3) Institutional organization of contemporary American society with particular attention to major social values. Writing-emphasis course.
311 Family (3) Theoretical frameworks and methodological approaches; their application in the sociological study of past and present family forms.
320 Interpersonal Communication Processes (3) (Same as Speech Communication 320.)
321 Sociological Theory (3) Survey of contemporary issues and problems in sociological theory with an emphasis on their historical development and their importance for the field. Students are required to form critical appraisals of the topics addressed. Prereq: C- or better in Sociology 110 or 120 or consent of instructor.
331 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 110 or 120 or consent of instructor. (Same as Legal Studies 331.)
343 Race and Ethnicity (3) Social sources of racial and ethnic cleavages and social, economic, and political consequences. Emphasis on race and ethnicity in the United States. Writing-emphasis course. (Same as African and African-American Studies and American Studies 343.)
344 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 contrasting explanations of the control of the state and the relative autonomy of the state.
345 Collective Behavior and Social Movements (3) Collective phenomena leading to social change. Response to disaster, popular crazes, and social protests and development, organization, and function of social movements. Emphasis on American cases. (Same as American Studies 345.)
350 Criminology (3) Systemic inquiry into alternative definitions of crime, statistical distribution of different types of crime causation, and responses to crime, primarily by the police.
352 Deviance and Social Control (3) Deviants, their lifestyles, social organization, and social control.
360 Environment and Resources (3) Relationship between scarcity of natural resources and changes in societal beliefs and social structure. Topics include social and physical limits to growth and collective action problems. Writing-emphasis course.
370 Social Psychology (3) Social psychological analysis of social behavior emphasizing its acquisition, its enactment, and its dynamic nature.
375 Gender in Society (3) Exploration of gender in society utilizing various sociological
COURSES OF INSTRUCTION

263

perspectives with special focus on the relationships between social structures, social roles, and gender identities. (Same as Women's Studies 375.)

380 Rural Sociology (3) (Same as Rural Sociology 380.)

399 Off-Campus Internship (1-6) Supervised experience at an approved site. Analysis of internship experiences with sociological tools provided through readings and class discussions. Oral and written reports required. Prerequisite: Departmental consent and senior standing in the major.

400 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.

405 Sociology of Sport (3) Social meaning, organization, and process of sport. Prereq: 291 or consent of instructor. (Same as Sport Studies 405.)

414 Sociology of Health Care (3) Organization of health care facilities, staff-patient relationships, demographic characteristics, and prevalence of disease.

415 Sociology of Aging (3) How roles and statuses change with age in relation to the major social institutions; the impact that the rapidly increasing number of older people have on society, the effect of society on older people.

442 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.)

446 The Modern World System (3) Critical examination of the capitalist world-system as a social system, its structure, its function, boundaries, regions, member groups, cleavages, and patterns of conflict. Analysis of who gets what, why, and how in the global political economy. Writing-emphasis course.

451 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 criminal courts, trials, sentences, and the implications and consequences of sentences. Prereq: 218 or 219 or permission of department.

455 Society and Law (3) How laws and legal processes are affected by social change, the social impact of legal sanctions, relations between law and social justice. Writing-emphasis course. (Same as Legal Studies 455.)


462 Population (3) Demographic factors and social structure; trends in fertility, mortality, population; population growth and distribution; and population policy.

464 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.)

465 Social Values and the Environment (3) Human dimensions of ecosystem management and public policy. An applied focus on how social values are activated within specific components. Brief examination of the police, with most of the emphasis on the criminal courts, trials, sentences, and the implications and consequences of sentences. Prereq: 218 or 219 or permission of department.

471 Sociolinguistics (3) (Same as English and Linguistics 471.)

491 Foreign Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

492 Off-Campus Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

493 Independent Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

SPANISH (924)

111-112 Elementary Spanish (3,3) Language laboratory required. Must be taken in sequence. Not available to students eligible for Spanish 150.

150 Intermediate Spanish Transition (3) This course is designed to prepare students for enrollment in Spanish 211. Prereq: Two years of high school Spanish a placement score below the level required for admittance to Spanish 211. This class will not count toward the College of Arts and Sciences intermediate-level foreign language requirement. Since 150 is a review of 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.

199 Spanish Language and World Business (2) 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 program in Language and World Business. See the Director for further information.

211-212 Intermediate Spanish (3,3) Prereq: 150 or 112 or Departmental Placement Exam. Must be taken in sequence. Students who place in 200-level courses from high school will receive six hours of elementary Spanish credit.

217-218 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 follow enriched program with continuing emphasis upon speaking ability and with an introduction to reading literary selections. Students who earn an A or B in 218 receive credit for 300. Prereq: 111-112 or equivalent.

300 Transition: Composition and Grammar through Reading (3) Provides preparation in writing skills and exercise in key elements of grammar through the development of reading comprehension, vocabulary acquisition, and compositions on assigned topics. Available to non-native or non-bilingual students of Spanish only. Prereq: 212 or equivalent or appropriate score on Spanish placement test.

305 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: 212 or 218 or permission of department.

321 Upper-level Grammar and Composition (3) Study of the more challenging grammatical issues in Spanish with practical application in composition assignments. Any review of basic skills covered in previous courses is to introduce finer points. Not available for credit for students whose level of proficiency in Spanish is superior as defined by the ACTFL Proficiency Guidelines. Prereq: 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, one-act plays, essays, and letters. Prereq: 323. Writing-emphasis course.

331 Introduction to Hispanic Culture (3) Introduction to the fundamental historical, political and demographic developments that lead to the international, geographical 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: 323. Writing emphasis course. (Same as Latin American Studies 331.)

332 Survey of Spanish Literature: 1700-Present (3) Main writers, trends, stylistic periods and artistic movements in Spain since 1700 set against a broad background of cultural, socio-political and historical developments. Emphasis on Neo-classicism, the Romanticism, modernismo, the avant-garde of the 1920’s and 1930’s, social realism, women writers, and contemporary developments. Prereq: 323 and 330. Writing emphasis-course.

333 Survey of Spanish-American Literature: 1700-Present (3) Main writers, trends, stylistic periods and artistic movements in Spanish America since 1700 set against a broad background of cultural, socio-political and historical developments. Emphasis on Neo-classicism, the Romanticism, modernismo, the avant-garde of the 1920’s and 1930’s, social realism, magical realism, the Latin American boom, women writers, and contemporary developments. Prereq: 323 and 330. Writing emphasis course. (Same as Latin American Studies 333.)

334 Survey of Hispanic Literatures: Beginnings-1700 (3) Main writers, trends, stylistic periods and artistic movements in Spain and Spanish America up to 1700 set against a broad background of cultural, socio-political and historical developments. Prereq: 323 and 330. Writing emphasis course. (Same as Latin American Studies 334.)

346-46 Language and Culture of the Hispanic Business World (3, 3) Commercial vocabulary, business letters, import-export, marketing. Hispanic social management culture, and the global significance of economic and political developments in Spanish-speaking countries. Required of all Spanish majors with a concentration in the Hispanic Business World. Prereq: 323 or permission of department if a student’s level of proficiency in Spanish is both superior and native as per the ACTFL Proficiency Guidelines.

401 Cultural Plurality and Institutional Changes in Latin America (3) Value systems, ethnic minorities, role of the military, the church, role of government, economic policies, dictatorships and nationalism. 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: 600 of 400-level Latin American Studies courses or consent of the 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. Emphasis on finer points of grammatical structures. Not available to native or bilingual students of Spanish without permission of department. Prereq: 323. 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: 323 or permission of department. Writing-emphasis course.

425 Introduction to Descriptive Linguistics (3) (Same as French, German, Russian, and Linguistics 425.)

426 Methods of Historical Linguistics (3) (Same as Russian, French, German, 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 second language acquisition. Prereq: 323, 330, 331 and comparison major or minor required 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 ideas. Prereq: 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, and political implications of films and a comparison of films with treatments of related subjects 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 video clips to present as works of art and in light of political, cultural, and social contexts. Taught in English. Not available for Spanish major or Spanish graduate credit. Graduate credit available for Latin American Studies and Cinema Studies. 1 hour lecture, 2 hours screening, and 1 hour discussion. Writing-emphasis course. (Same as Latin American Studies 465 and Cinema studies 465.)

479 DisenCHANTed 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: 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.)

480 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 social and cultural evolution of 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.

482 Trends in Hispanic Thought (3) Intellectual/philosophical currents represented in literary texts, selected movements, or movements from historical periods of Spain and Latin American countries. Prereq: 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, especially with regard to identity and concepts of nationhood. Among possible course topics: mestizaje; conceptual distinctions between race and ethnicity in Latin America; indigenismo; Afro-Cuban and Afro-Latin American literature and art; relationship between Jews, Christians, and Moors in Spain. 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.

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: 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.

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, including with topics from the Middle Ages to the present day may be explored. Prereq: 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.

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. Satisfactory/No Credit grading only.

491 Foreign Study (1-15)

493 Independent Study (1-15)

494 Spanish Community Service Practicum (1) Supervised community service with local agencies that assist Hispanic community; or supervised activities with local cultural organizations that promote awareness of Hispanic culture among the general public. Each credit hour requires 40 semester hours of off-campus supervised work and a weekly one-hour meeting with the faculty member. Prereq: completion of 18 hours of upper-division Spanish and consent of instructor. Maximum of one hour credit per semester. May be repeated. Maximum 3 hours.

SPEECHEmunication (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) Analysis and exploration of the conceptual and theoretical 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.

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, films, songs, demonstrations, drama, and public address.

270 Argumentation and Debate (3) Reasoned decision-making with emphasis on analysis, evidence, reasoning, constructing and refuting arguments.

280 Introduction to Oral Interpretation (3) Art of reading aloud; development of interpretive techniques and their application to selected passages of prose, poetry, and drama. Writing-emphasis course.

300 Nonverbal Communication (3) Exploration of nonverbal communication from sociocultural, cognitive, and psychophysiological perspectives, research and research methodology, and the impact of nonverbal behavior, research strategies, and theoretical approaches.

310 Persuasion (3) Methods which contribute to effective and ineffective persuasion. Topics include credibility, message construction, and receiver variables.

320 Interpersonal Communication Processes (3) Social dimensions of interpersonal communication and relationships. (Same as Sociology 320.)

330 Group Communication (3) Small group decision-making: evidence, argumentation, leadership, roles, and norms as they affect critical thinking in groups.


350 Communication Theory (3) Survey of social science approach to theorizing about communication. Prereq: 100.

390 History of Rhetorical Theory (3) Western rhetorical theory from Plato to the present. Prereq: 100.

397 Honors Seminar (1) Required of students enrolled in the honors program; admission with consent of department.

400 Topics in Speech Communication (3) Variable content course affording opportunity to offer subject matter not covered in an existing course. Topics, scope of subject matter, and prerequisites to be determined by department. May be repeated. Maximum 6 hours. Major credit limited to 3 hours.

420 Communication and Conflict (3) Communication as a significant factor in the development, management, and resolution of conflict at 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) (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. Reserved for Junior/Senior level majors with at least a 3.0 GPA, or by special permission of Internship Director. Satisfactory/No Credit grading only. May be repeated; maximum 6 hours.

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 campaigns 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 U.S. Writing-emphasis course. (Same as American Studies 469 and Legal 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 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 deadline). 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, ordinarily, in an area of study not covered by departmental curriculum. Application forms available in department office. 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.

497-498 Senior Honors Thesis (3,3) Required of students enrolled in the honors program, admission with the permission of the department.

499 Proseminar in Speech Communication (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, 340, 350, and at least 12 hours of major requirements in speech communication. Writing-emphasis course.

SPORTMANAGEMENT (957)

100 Orientation to Sport Management (1) Overview of the sports industry and Sport Management major. Taken the first semester as pre-major.

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: 100.

290 Practicum I (3) Supervised part-time field experience at an approved site for the purpose of clarifying career goals. Requires a minimum of 120 clock hours. Prereq: Progression to Sport Management. Satisfactory/No Credit grading only.

311 Coaching Football (1) Theoretical and practical application of various coaching techniques in football for the prospective secondary/college coach. Includes analysis and selection of appropriate game plans, specific conditioning and training programs, practice organization, player evaluation, scouting, individual and team offensive and defensive strategies. Prereq: Consent of instructor.

312 Coaching 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. Prereq: Progression to Sport Management.

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 to Sport Management.

370 Event Management (3) Study of the various principles involved in the organization, promotion, and management of special events. Students will combine theory and practice through experience with assigned special events. Prereq: Progression to Sport Management or consent of instructor.

COURSES OF INSTRUCTION 265

440 Sport Marketing (3) Application of fundamental marketing concepts to the sport industry. Marketing research, promotions, fund raising, advertising, and assessment of marketing programs specific to sport will be covered. The historical development of sport marketing will be included. Prereq: Marketing 300 and progression to Sport Management.

450 Legal Aspects of Sport (3) Identification and application of various areas of law to sport industry. Includes how constitutional law, contract law, anti-trust law, and tort law impact sport management decisions. Special emphasis placed on discrimination in sport (e.g., race, gender, ethnicity, and disability). Prereq: Progression to Sport Management.

460 Development and Revenue Generation in Sport (3) Designed to provide overview of areas, strategies, and techniques used in the production of revenue for sport organizations and through sporting events. Emphasis on developing balanced, multifaceted programs that target a variety of constituencies in the sport industry.

490 Sport Management Internship (6-12) Supervised work experience at an approved site offering sport management opportunities. Emphasis on managerial tasks and administrative procedures. Requires a minimum of 480 clock hours. Prereq: Progression to Sport Management, overall 2.5 GPA (transfer work included), completion of all 300-level requirements, and senior standing. Enrollment for two semesters (6 hours each) or one semester (12 hours required). Total 12 hours required. Satisfactory/No Credit grading only.

493 Directed Independent Studies (1-3) Independent study in a specialized area of sport management. Prereq: Progression to Sport Management. May be repeated. Maximum of 9 hours.

SPORT STUDIES (959)

231 Mental Training for Sport and Life (3) Focus on the identification, development, and implementation of effective mental training skills for sport and life. Topics include: personal growth and excellence, compusport, confidence, mental training skills, coach-athlete relationships, and the value of failure will be presented as well as discussed in small group format.

290 Human Motor Behavior (3) Theories and principles explaining 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.)

321 History of Sport and Physical Activity in Western Culture (3) Study of sport and physical activity 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.

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.

380 Special Topics (1-3) Study in selected disciplinary or professional areas of Physical Education. May be repeated. Prereq: Progression to the major.

491 Psychology of Coaching (2) Major topics and theories dealing with social-psychological factors affecting and relating to sport performance, with practical implications and applications to teaching and coaching. Prereq: Progression to major or consent of instructor.

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

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 grading or letter grade.

STATISTICS (962)


207 Honors Introduction to Statistics (3) Intended as an alternative to 201 for higher GPA students. Involves both lecture and labs, prerequisite: Mathematics 125, 141, or 147, 250- minute lecture classes, and one 110-minute lab per week.

320 Regression and Correlation Methods (3) Simple linear regression and correlation analysis, time series analysis, multiple regression, variable selection, regression diagnostics, partial correlation, and categorical data analysis techniques. Use of statistical computing software. Applied course appropriate for a general audie. Prereq: 201 or 220.

330 Experimental Methods (3) Strategies of experimentation, factorial and fractional factorial experiments, sequential experimentation, blocking and run order restrictions, Taguchi’s strategies to reduce variation. Use of statistical computing software. Applied course for a general audience. Prereq: 201 or 251.


471 Statistical Methods (3) Numeric and graphic description of data; probability and probability distributions, simulation; sampling distributions; estimation and hypothesis testing for one and two sample parametric and nonparametric approaches, bootstrapping; tests for count data; simple and multiple linear regression, diagnostics and validation; analysis of variance. Uses SAS and other statistical software. Prereq: 320 or consent of instructor.


474 Introduction to Data Mining (3) Understanding and application of data mining methods. Data preparation; exploratory data analysis and visualization; cluster analysis; logistic regression; decision trees; neural networks; association rules; model assessment; and other topics. Applications to real world data. Use of standard computer packages. Prereq: 471, or consent of instructor.


483 Special Topics in Statistics (1-3) Topics vary. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.


492 Internship (1-6) 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 chairperson of the Statistics Department Undergraduate Affairs Committee. Satisfactory/No Credit grading 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 courses in statistics and permission of the chairperson of the Statistics Department Undergraduate Affairs Committee. Letter grade or Satisfactory/No Credit grading only. May be repeated. Maximum 6 hours.

THEATRE (976)

100 Introduction to Theatre (3) Understanding theatre: thought, philosophy, aesthetics, and production practices. Writing-emphasis course.

200 Basic Theatre Production (3) Introduction to techniques for the production of costumes, scenery, and lighting for the theatre. Emphasis on hands-on skills in labs.

220 Acting I (3) Basic Acting Techniques.

221 Acting II (3) Further exploration and development of acting techniques through exercises and beginning scene work. Prereq: 220.

300 Play Analysis (3) Study of methods and tools used in script analysis for the purpose of play production. Prereq: 100 or consent of Instructor.


323 Stage Movement (3) Introduction to movement/kinesthetic awareness techniques and their application to performance. Prereq: 220 or consent 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. Prereq: 220 and 221 or consent of instructor.

340 Introduction to Costume Design (3) Development of research and rendering skills.

345 Costume Construction (3) Techniques in the construction of costumes for the theatre. Prereq: 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: 200 or consent of instructor.

410 Special Studies in History, Literature and Criticism (3) Content varies. Concentrated study in a given period or area of Theatre History, Literature or Criticism. May be repeated.

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: 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 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 Patternning (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 experience. Prereq: Consent of instructor.

456 Rendering (3) Techniques in monochrome and full color illustration of space and form. Some acquaintance with basic mechanical perspective and freehand sketching is assumed.

462 Advanced Lighting Design (3) Advanced lighting design theory and practice. Lab and project intensive. Prereq: Theatre 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 techniques for 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 relationships and school organizations. May be repeated. Maximum 6 hours.

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 grading only.

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 grading only.

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.

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.

494 Supervised Readings (1-3) Topics to be assigned. May be repeated. Maximum 12 hours.

495 Special Topics (1-3) Topics to be assigned. May be repeated. Maximum 12 hours.
UNIVERSITY HONORS (983)

See University Honors (page 195) for Honors by Contract.

117-127 Honors Freshman Seminar (1,1) Sequence required of and limited to all freshmen honors students. 117 concentrates on computer skills, contemporary issues, and writing, 127 concentrates on critical thinking, contemporary issues, and international study. Satisfactory/No Credit grading 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. Maximum 6 hours. Letter grade only.

338-348 University Scholars Seminar (1,1) Selected topics; enrollment limited to students in the University Honors Program, or 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 projects. Limited to and required of all graduating students in The University 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 intensive. Intended for entering students.

210-220 Special Topics in University Studies (1-9, 1-9) Interdisciplinary approaches to selected topics for lower division students. Small group discussion of varying topics that transcend the boundaries of a single discipline. Writing intensive and team taught. May be repeated maximum 9 hours. Permission of instructor required. Variable credit.

227 Honors: Topics in University Studies (3) Interdisciplinary approach to a significant scholarly or social issue for lower division students. Small group discussion of varying 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.

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 and species extinctions caused by or related to their beliefs and values.

410-420 Advanced Topics in University Studies (3,3) Interdisciplinary research approach 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 Prophecy, (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. Coordinator’s permission required. Writing intensive.

417 Honors: Advanced Topics in University Studies (3) Honors course utilizing an in-depth 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 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.

280 Introduction to Real Estate (3) (Same as Finance 280.)

321 Urban Politics and Process (3) (Same as Political Science 321.)

322 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 a unified project, subject to faculty approval. Open to Urban Studies Majors only. Prereq: Approval of department. Satisfactory/No Credit grading only.

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.)

493 Independent Study (3-6) May be repeated. Maximum 6 hours.

WILDLIFE AND FISHERIES SCIENCE (993)


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, 340, 350, 440, 442.

330 Ecosystem Description and Management (3) Analysis of resources on assigned tract of land and synthesis of situation to address problem assigned. Oral presentation and written report required. Coreq: 303, 305, 323, 340, 350, 440, 442.


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.

350 Wildlife Damage Management (3) Principles and methods for wildlife damage management including biological, regulatory, practical, and social considerations. Weekend field trips (2) required. Prereq: Forestry, Wildlife, and Fisheries 317 or consent of instructor. 2 hours and 1 lab or field.

440 Wildlife Techniques (3) Methods in wildlife damage control, forest, farmland, wetland wildlife habitat management, identification of wildlife field sign, wildlife capturing techniques and management plan preparation. Weekend field trips (2) required. Prereq: Forestry, Wildlife and Fisheries 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 ecosystems; 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: Forestry, Wildlife and Fisheries 317 or consent of instructor. 1 hour and 1 lab or field.

443 Fisheries Science (3) Quantification and management of freshwater fisheries including population estimation, age and growth, biological assessment, and stocking. Prereq: Forestry, Wildlife, and Fisheries 317 or consent of instructor. 2 hours and 1 lab.

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: Forestry, Wildlife, and Fisheries 317 or consent of instructor. 2 hours and 1 lab. One weekend field trip required.
445 Ecology and Management of Wild Birds (3) Biological and ecological characteristics of game birds, endangered birds, and bird pests. Current principles and practices of wild bird management. Prereq: Forestry, Wildlife and Fisheries 317 or consent of instructor. 2 hours and 1 lab. One weekend field trip required.

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.

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 grading only.

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: Junior 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 roles and stereotypes portrayed in a variety of literary 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.)

310 Emergence of the Modern American Woman (3) Role of women in the development of American civilization and values. 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.)

332 Women in American Literature (3) (Same as English 332.)

340 Women, Politics, and the Law (3) An examination of recent changes in the laws affecting women and a study 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 changing role of women in various contemporary cultures: industrial democracies, developing nations, communist countries. A team-taught course with guest lectures and slide presentations.

375 Gender in Society (3) (Same as Sociology 375.)

382 Philosophy of Feminism (3) (Same as Philosophy 382.)

383 Women in the Greek and Roman World (3) (Same as Classics 383.)

400 Topics in Women’s Studies (3) Content varies. May be repeated.

410 Sex Role Development: Implications for Education and Counseling (3) (Same as Counselor Education 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.)

433 French and Francophone Women Writers (3) (Same as French 433.)

434 Psychology of Gender (3) (Same as Psychology 434.)

453 Women in American History (3) (Same as History 453.)

465 Women and Mass Media (3) (Same as Journalism 465.)

466 Rhetoric of the Woman’s Rights Movement to 1930 (3) (Same as Speech Communication 466.)

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) (Same as Speech Communication 476.)

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.
Index

-A-
Academic Advising 35, 131, 154
Academic Calendar 7, 8
Academic Common Market 25
Academic Concentration (Physics Major) 13, 17, 123
Academic Discipline 8
Academic Policies and Procedures 35
Academic Review 8, 43
Academic Second Opportunity 8, 43
Academic Year 8
Academically Talented High School Students 23
Accounting and Business Law, Department of 13, 132
Accounting Courses 207
Accounting Major 13, 16, 130, 132
Accreditation 22
Administration 8
Advisor 8
Admission 23
Adolescent Health Minor 14, 18, 154, 163
Adult Student Services Center 29
Advanced Placement (AP) Credit 8, 23, 38
Advanced Studies 204
Advertising and Public Relations, School of 14, 147, 148
Advertising Courses 207
Advertising Major 14, 16, 148
Advisor 8
Aerospace Engineering Courses (see Engineering Aerospace Course)
Aerospace Engineering Major 15, 16, 171, 186
Aerospace Engineering Minor 15, 18, 173, 186
African and African-American Studies Concentration (Interdisciplinary Programs Major) 11, 16, 103
African and African-American Studies Courses 208
African and African-American Studies Minor 11, 18, 104
Agricultural and Extension Education Courses 208
Agricultural Economics and Business Major 10, 16, 47, 50
Agricultural Economics and Business Minor 10, 48, 50
Agricultural Economics Courses 208-209
Agricultural Economics, Department of 10, 47, 50
Agricultural Education Concentration (Agricultural Science Major) 10, 16, 47, 52
Agricultural Equipment Systems Management Concentration (Agricultural Science Major) 10, 16, 47, 50
Agricultural Extension Education Concentration (Agricultural Science Major) 10, 16, 47, 52
Agricultural Science Major 10, 16, 47, 51
Agricultural Sciences and Natural Resources, College of 10, 47
Agricultural Systems Technology Concentration (Environmental and Soil Sciences Major) 10, 16, 47, 58
Agriculture and Natural Resources Courses 209
Agriculture and Natural Resources Interdepartmental Unit 10, 51
Agriculture and Veterinary Medicine Library 196, 197
Air Force Aerospace Studies Courses 209
Air Force Aerospace Studies Curriculum 203
Air Force, Department of 202
Air Force ROTC 202-203
American History Requirement 38, 44
American Studies Concentration (Interdisciplinary Programs Major) 11, 16, 104
American Studies Courses 209-210
American Studies Minor 11, 18, 104
Animal Science Courses 210
Animal Science, Department of 10, 47, 53
Animal Science Major 10, 16, 47, 53
Animal Science Minor 10, 18, 48, 55
Anthropology Courses 210-211
Anthropology, Department of 10, 88
Anthropology Major 10, 16, 81, 89
Anthropology Minor 10, 18, 89
Applied Concentration (Physics Major) 13, 17, 123
Arabic Courses 211
Architecture and Design, College of 10, 71
Architecture Courses 211-213
Architecture Major 10, 16, 73
Architecture, School of 10
Area Studies Option (Russian Major) 12, 17, 111
Army ROTC 199-202
Arrowmont 93
Arrowmont Courses (see Art Arrowmont Courses) Art 61
Art Arrowmont Courses 216-217
Art Ceramics Courses 213
Art Courses 213
Art Design/Graphic Courses 213-214
Art Drawing Courses 214
Art Education Courses 214
Art Education Major 10, 15, 16, 92, 167
Art History Courses 214-215
Art History Major 10, 16, 81, 92
Art History Minor 10, 18, 93
Art Media Arts Courses 215
Art Painting Courses 215-216
Art Printmaking Courses 216
Art, School of 10, 89
Art Sculpture Courses 216
Articulation Agreements 24, 131
Arts and Sciences, College of 10, 77
Asian Languages Courses 217
Asian Studies Concentration (Interdisciplinary Programs Major) 11, 16, 104
Asian Studies Courses 217
Asian Studies Minor 11, 18, 104
Astronomy Courses 217
Astronomy Minor 13, 18, 81
Audiology and Speech Pathology Courses 217
Audiology and Speech Pathology, Department of 11, 93
Audiology Major 11, 16, 81, 93
Auditing Courses 8, 42

-B-

Baccalaureate Degree (see Bachelor’s Degree)
Bachelor of Architecture 17, 71, 73
Bachelor of Arts Degree 17, 78
Bachelor of Arts in Communication 17, 149
Bachelor of Fine Arts 17, 78, 89, 92
Bachelor of Music Degree 17, 78, 114-122
Bachelor of Science Degree 17, 77
Bachelor of Science in Aerospace Engineering 17, 186
Bachelor of Science in Agriculture 17, 50, 51, 52, 60, 61
Bachelor of Science in Animal Science 17, 53, 54
Bachelor of Science in Biomedical Engineering 17, 187
Bachelor of Science in Biosystems Engineering 17, 56, 57
Bachelor of Science in Business Administration 17, 129, 133-145
Bachelor of Science in Chemical Engineering 17, 178
Bachelor of Science in Chemistry 17, 78, 97
Bachelor of Science in Civil Engineering 17, 179
Bachelor of Science in Communication 17, 148, 149, 151
Bachelor of Science in Computer Engineering 17, 180
Bachelor of Science in Education Degree 17, 153, 163, 166, 167-168
Bachelor of Science in Electrical Engineering 17, 181
Bachelor of Science in Engineering Physics 17, 182
Bachelor of Science in Environmental and Soil Sciences 17, 58, 59
Bachelor of Science in Forestry 17, 63
Bachelor of Science in Human Ecology Degree 17, 153, 157-159, 162, 164-166
Bachelor of Science in Industrial Engineering 17, 183
Bachelor of Science in Interior Design 17, 71, 75
Bachelor of Science in Materials Science and Engineering 17, 184
Bachelor of Science in Mechanical Engineering 17, 186
Bachelor of Science in Nuclear Engineering 17, 187
Bachelor of Science in Nursing 17, 189-191
Bachelor of Science in Plant Science and Landscape Systems 17, 67, 68, 69
Bachelor of Science in Service Management 17
Bachelor of Science in Service Management Degree 17, 153, 160-161
Bachelor of Science in Social Work 17, 194
Bachelor of Science in Wildlife and Fisheries Science 17, 64
Bachelor’s Degree 8
Bachelor’s Degree Requirements (College of Arts and Sciences) 78
Bachelor’s Degree Requirements, General 44
Basic Skills Requirements (College of Arts and Sciences) 79
Biochemistry and Cellular and Molecular Biology Concentration (Biological Sciences Major) 11, 16, 94
Biochemistry and Cellular and Molecular Biology Courses 218
Biochemistry and Cellular and Molecular Biology, Department of 94
Biological Sciences Major 11, 16, 81, 94
Biological Sciences Minor 11, 18, 94
Biology Courses 218-219
Biology, Division of 11, 94

Biomedical Engineering Courses (see Engineering Biomedical Courses)
Biomedical Engineering Major 15, 16, 171, 187
Biosystems Engineering and Environmental Science, Department of 10, 47, 55
Biosystems Engineering Courses 219
Biosystems Engineering Major 10, 16, 47, 55, 176
Biosystems Engineering Technology Courses 219
Biosystems Engineering Technology Minor 10, 18, 48, 57
Black Cultural Center 29
Botany 219-220
Botany, Department of 96
Brazilian Studies Track (Latin American Studies Concentration) 12, 16, 98
Broadcasting (see Electronic Media)
Bursar (see Office of the Bursar)
Business Administration, College of 13, 129
Business Administration Courses 220
Business Law Courses 220
Business Management Concentration (Plant Sciences and Landscape Systems Major) 10, 17, 47, 66
Business Minor 13, 18, 82, 130
Business Studies Major 13, 16, 130, 133

-C-

Capstone Courses (College of Arts and Sciences) 81
Career Services 29
Catalog 8
Catalog Purpose 2
Catalog Year 8
Center for International Education 30
Ceramics Concentration (Studio Art Major) 10, 17, 90
Ceramics Courses (see Art Ceramics Courses)
Changes in Registration 42
Chemical Engineering Courses (see Engineering Chemical Courses)
Chemical Engineering, Department of 15, 176
Chemical Engineering Major 15, 16, 171, 178
Chemistry Courses 220-221
Chemistry, Department of 11, 96
Chemistry Major 11, 16, 81, 96
Chemistry Minor 11, 18, 96
Child and Family Studies Courses 221-222
Child and Family Studies, Department of 14, 153, 156
Child Development Concentration (Child Development Major) 14 16, 154, 157
Child Development Major 14, 16, 154, 156
Child Development Minor 14, 18, 154, 158
Chinese Courses 222
Chinese-Language and World Business 11, 16, 112
Chinese Minor 12, 18, 113
Cinema Studies Courses 222
Cinema Studies Minor 11, 16, 81, 104
Cinematography Courses (see Art Media Arts Courses)
Civil and Environmental Engineering, Department of 15, 178
Civil Engineering Courses (see Engineering Civil Courses)
Civil Engineering Major 15, 16, 171, 179
Class Attendance and Eligibility 36
Classical Civilization Concentration (Classics Major) 11, 16, 98
Classical Civilization Minor 11, 18, 98
Classics Courses 222
Classics, Department of 11, 98
Classics Major 11, 16, 81, 98
Classification 8, 39
CLEP (see College Level Examinations Program) 39
Collateral Area 8, 130
Collateral Option (Economics Major) 13, 16, 134
Collateral Option (Logistics and Transportation Major) 13, 16, 140
Collateral Option (Management Major) 13, 16, 139
Collateral Option (Marketing Major) 14, 16, 141
Collateral Option (Statistics Major) 14, 17, 144
College 8
College Level Examinations Program (CLEP) 39
College Scholars (College of Arts and Sciences) 11, 16, 78, 82, 98
College Scholars Honors Courses 222-223
Commencement 8
Communication and Information, College of 14, 147
Communication and Information Minor 14, 18, 148
Communication Courses 223
Communication Studies, School of 14, 147, 149
Community Health Education Major 14, 16, 154, 162
Community Health Education Minor 14, 18, 154, 163
Comparative and Experimental Medicine Courses 223
Comparative Literature Concentration (Interdisciplinary Programs Major) 11, 16, 104
Comparative Literature Courses 223
Comparative Literature Minor 11, 18, 104
Computer Engineering Courses (see Engineering Electrical and Computer Courses)
Computer Engineering Major 15, 16, 171, 180
Computer Science Courses 223
Computer Science, Department of 11, 98
Computer Science Major 11, 16, 99
Computer Science Minor 11, 18, 99
Concentration 8, 10, 17
Conferences, Department of 205
Consumer Services Management, Department of 14, 153, 159
Contact Hours 8
Cooperative Engineering Program 172
Core Courses 8
Corequisite (Coreq.) 8, 42
Correspondence 8, 25, 40, 44
Counselor Education Courses 223
Course 8
Course Load 8
Course Number 8, 39
Course Numbers and Levels 39
Course Title 8
Creative Writing Concentration (English Major) 11, 16, 101
Credit 8
Credit by Examination (see Proficiency)
Credit Hours 8, 41
Criminal Justice Concentration (Sociology Major) 13, 17, 126
Cultural Studies in Education Courses 224
Curriculum 8

-D-

Dance Courses 224
Dance Minor (Pedagogy and Performance Options) 14, 18, 154, 167
DARS (see Degree Audit Report System)
Dean of Students, Office of 2, 35
Dean's List 39
Deferred Payment Plan 26
Degree 8
Degree Audit Report System (DARS) 8, 35, 40
Degrees 17
Department 8
Departmental Exam 8
Design Courses (see Art Design/Graphic Courses)
Dining Services 30
Disability Services 30
Discipline 8
Dismissal 8, 25, 33, 43
Distance Education and Independent Study, Department of 40, 206
Distribution Requirements (College of Arts and Sciences) 79
Divisional Distribution Requirements (College of Arts and Sciences) 79
Drawing Concentration (Studio Art Major) 10, 17, 90
Drawing Courses (see Art Drawing Courses)
Drop/Add 8, 42
Drug-Free Campus and Workplace Policy 22
Dual Concentration with International Business (Logistics and Transportation Major) 13, 16, 140
Dual Concentration with International Business (Management Major) 13, 16, 138
Dual Concentration with International Business (Marketing Major) 14, 16, 142
Dual Concentration with Logistics and Transportation (Marketing Major) 14, 16, 142
Dual Concentration with Logistics and Transportation (Statistics Major) 14, 17, 145
Dual Concentration with Marketing (Logistics and Transportation Major) 14, 16, 140
Dual Concentration with Marketing (Statistics Major) 14, 17, 145
Dual Concentration with Operations Management (Logistics and Transportation Major) 14, 16, 140

Dual Concentration with Statistics (Logistics and Transportation Major) 14, 16, 141
Dual Concentration with Statistics (Marketing Major) 14, 16, 142

-E-

Early Childhood Education Courses 224
Early Childhood Education Teacher Licensure Concentration (Child Development Major) 14, 16, 154, 157
Earth and Planetary Sciences, Department of 11, 99
Ecology and Evolutionary Biology Concentration (Biological Sciences Major) 11, 16, 95, 100
Ecology and Evolutionary Biology Courses 278-279
Ecology and Evolutionary Biology, Department of 100
Economics Courses 225
Economics, Department of 13, 100, 134
Economics Major (Business Administration) 13, 16, 130, 134
Economics Major (College of Arts and Sciences) 11, 16, 81, 100
Economics Minor (College of Arts and Sciences) 11, 18, 100
Education Courses 225
Education, Elementary Courses (see Elementary Education Courses)
Education, Health, and Human Sciences, College of 14, 38, 52
Education of the Deaf and Hard of Hearing Concentration (Special Education Major) 15, 17, 154, 168
Education of the Deaf and Hard of Hearing Courses 225
Educational Administration and Policy Studies Courses 225
Educational Administration and Policy Studies, Department of 14, 153
Educational Advancement Program 30
Educational Interpreting Concentration (Special Education Major) 15, 17, 154, 167
Educational Interpreting Courses 225-226
Educational Psychology and Counseling, Department of 14, 153, 162
Educational Psychology Courses 226
EOO/Title IX/Section 504 Statement 2, 22
Electives 8
Electrical and Computer Engineering, Department of 15, 179
Electrical Engineering Courses (see Engineering Electrical and Computer Courses)
Electrical Engineering Major 15, 16, 171, 181
Electronic Media Courses 226
Electronic Media Major 14, 16, 151
Electronic Media Minor 14, 18, 148, 151
Elementary Education Courses 225
Elementary Education Minor 15, 18, 154, 169
Engineering Aerospace Courses 226-227
Engineering Biomedical Courses 227
Engineering Biosystems (see Biosystems Engineering)
Engineering Chemical Courses 227-228
Engineering Civil Courses 228
Engineering, College of 15, 171
Engineering Communication and Performance Minor 14, 18, 154, 162, 173, 176
Engineering Electrical and Computer Courses 229
Engineering Fundamentals Courses 230
Engineering Fundamentals Division 176
Engineering Industrial Courses 230
Engineering Materials Science Courses 230-231
Engineering Mechanical Courses 231
Engineering Nuclear Courses 231-232
Engineering Physics Major 15, 16, 171, 181
Engineering Technology, Biosystems (see Biosystems Engineering Technology)
English Courses 232-234
English, Department of 11, 101
English Education Courses 234
English Language Institute 206
English Major 11, 16, 81, 101
English Minor 11, 18, 102
English Minor (Technical Communication Emphasis) 11, 18, 102
Enrollment 42
Ensemble Courses (see Music Ensemble Courses)
Entomology and Plant Pathology Courses 234
Entomology and Plant Pathology, Department of 10, 59
Environmental and Soil Sciences Courses 234
Environmental and Soil Sciences Major 10, 16, 47, 57
Environmental and Soil Sciences Minor 10, 18, 59
Environmental Engineering Minor 15, 18, 173, 179
Environmental Issues and Globalization Concentration (Sociology Minor) 13, 18, 126
Environmental Issues and Globalization Concentration (Sociology Major) 13, 17, 126
Environmental Science Concentration (Environmental and Soil Sciences Major) 10, 16, 47, 58
Environmental Science Concentration/Biological Track (Pre-Teaching Major) 13, 17, 87
Environmental Science Concentration/Physical-Chemical Sciences Track (Pre-
Teaching Major) 13, 17, 87
Environmental Studies Concentration (Interdisciplinary Programs Major) 11, 16, 105
Equity and Diversity, Office of 2, 22
Exams 43-44
Exercise Science Courses 235
Exercise Science Major 14, 16, 154, 163
-F-
Facilities Fee 26
Family Education Rights and Privacy Act (FERPA) 38
Family Studies Major 14, 16, 154, 158
Family Studies Minor 14, 18, 159
Fees for Courses Not Taken for Credit 26
Fees for Sponsored International Students 25
Final Exams 8, 44
Final Registration Late Fee 26
Finance Courses 235
Finance, Department of 13, 135
Finance Major 13, 16, 130, 136
Financial Aid and Scholarships, Office of 27
Financial Aid Withdrawals 27
First Class Meeting 36
First Year Studies 33
First Year Studies Courses 235
Fisheries Science Courses (see Wildlife and Fisheries Courses)
Food Engineering Concentration (Biosystems Engineering Major) 10, 16, 47, 57
Food Science and Technology Courses 235-236
Food Science and Technology, Department of 10, 47, 60
Food Science and Technology Major 10, 16, 47, 60
Food Science and Technology Minor 10, 18, 48, 62
Foreign Language/ESL Education Courses 236
Forest Resources Management Concentration (Forestry Major) 10, 16, 47, 63
Forestry Courses 236
Forestry Major 10, 16, 47, 62
Forestry Minor 10, 18, 48, 64
Forestry, Wildlife and Fisheries Courses 236
Forestry, Wildlife and Fisheries, Department of 10, 47, 62
French Courses 237
French Major 12, 16, 81, 110, 112
French Minor 12, 18, 113
Freshman English 41
-G-
General Concentration (Physics Major) 13, 17, 124
General Education Requirement 19, 44
General Regulations 39
General Studies Track (Latin American Studies Concentration) 12, 16, 98
Geography Courses 237-238
Geography, Department of 11, 102
Geography Major 11, 16, 81, 102
Geography Minor 11, 18, 102
Geology Courses 238-239
Geology Major 11, 16, 81, 100
Geology Minor 11, 18, 100
German Courses 239-240
German Major 12, 16, 81, 111, 112
German Minor 12, 18, 113
German Studies Concentration (German Major) 12, 16, 111
Gerontology Minor 14, 18, 154, 162, 189
Glossary 8
GPA (see Grade Point Average)
Grade Appeal Procedure 33, 37
Grade Point Average (GPA) 8, 41
Grades 41
Graduate Studies, Office of 204
Graduating Senior Privilege 45
Graphic Design Courses (see Art Design/Graphic Courses)
Graphic Design Major 10, 16, 92
Greek Concentration (Classics Major) 11, 16, 98
Greek Courses 240
Greek Minor 11, 18, 98
-H-
Health and Exercise Science, Department of 14, 153, 162
Health Courses 240
Hearing and Speech Center 31
Hebrew Courses 241
Hilltopics Student Handbook 2, 35, 37
Hispanic Studies Concentration (Spanish Major) 12, 17, 111
Historical Background 21
History Courses 241-242
History, Department of 11, 103
History Major 11, 16, 81, 103
History Minor 11, 18, 103
Honor Statement 36
Hons (Anthropology Major) 10, 16, 89
Hons (Biochemistry and Molecular Biology Concentration) 11, 16, 95
Hons by Contract 195
Hons Categories for Graduation 45
Hons (Chemical Engineering) 15, 16, 178
Hons (Chemistry Major) 11, 16, 97
Hons Courses 39
Hons (Economics Major) 11, 16, 100
Hons (Ecology and Evolutionary Biology Concentration) 11, 16, 95
Hons (English Major–Creative Writing Concentration) 11, 16, 102
Hons (English Major–Individualized Program Concentration) 11, 16, 102
Hons (English Major–Literature Concentration) 11, 16, 102
Hons (English Major–Rhetoric and Writing Concentration) 11, 16, 102
Hons (English Major–Technical Communications Concentration) 11, 16, 102
Hons (Geography Major) 11, 16, 102
Hons (Geology Major) 11, 16, 100
Hons (German Major) 12, 16, 111
Hons (History Major) 11, 16, 103
Hons (Mathematics Major) 12, 18, 109
Hons (Microbiology Concentration) 11, 16, 95
Hons (Plant Biology Concentration) 11, 16, 95
Hons (Political Science Major) 13, 17, 125
Hons (Psychology Major) 13, 17, 124
Hons (Speech Communication Major) 14, 17, 150
Horticulture and Agronomy Concentration (Plant Sciences and Landscape
Systems Major) 10, 17, 47, 67
Hotel and Restaurant Administration Courses 242-243
Hotel and Restaurant Administration Major 14, 16, 154, 160
Hotel and Tourism Management Concentration (Hotel and Restaurant
Administration Major) 14, 16, 154, 160
Housing 31
Human Ecology Courses 243
Human Resource Development Courses 243
Human Resource Development, Department of 13, 136
Human Resource Development Major 13, 16, 130, 137
Human Services Courses 243
-I-
Inclement Weather Policy 22
Incomplete, Grade of (I) 8, 41
Independent Study 8
Individualized Program (College of Arts and Sciences) 11, 16, 82
Individualized Program Concentration (English Major) 11, 16, 102
Industrial Engineering Courses (see Engineering Industrial Courses)
Industrial Engineering, Department of 15, 182
Industrial Engineering Major 15, 16, 171, 183
Information Management Courses 244
Information Sciences Courses 244
Information Sciences, School of 14, 147, 150
INDEX 273

Instructional Technology and Educational Studies, Department of  14, 153, 163
Instructional Technology Courses  244
Instrument Courses (see Music Instrument Courses)
Interdisciplinary Programs Courses  244
Interdisciplinary Programs Major  11, 16, 81, 103, 112
Interior Design Courses  244-245
Interior Design Program  10, 16, 75
Interior Design Major  10, 16, 75
International House  30
International Students  24
Italian Courses  245
Italian Major  12, 16, 81, 111, 112
Italian Minor  12, 18, 113

-J-

Japanese Courses  245
Japanese-Language and World Business  11, 16, 112
Japanese Minor  12, 18, 81, 113
Jazz Courses (see Music Jazz Courses)
John C. Hodges Main Library  196-197
Journalism and Electronic Media, School of  14, 147, 150
Journalism Courses  245
Journalism Major  14, 16, 151
Journalism Minor  14, 18, 148, 151
Judaic Studies Concentration (Interdisciplinary Programs Major)  11, 16, 105
Judaic Studies Courses  245-246
Judaic Studies Minor  11, 18, 105

-K-

Keyboard Courses (see Music Keyboard Courses)
Keyboard Emphasis (Music Education–Vocal/ General Concentration)  12, 16, 116-118

-L-

Lab (laboratory)  9
Landscape Design Concentration (Plant Sciences and Landscape Systems Major)  10, 17, 47, 87
Landscape Design Courses (see Plant Science and Landscape Systems Courses)
Language and Literature Concentration (German Major)  12, 16, 111
Language and World Business Concentration  11, 12, 16, 105, 111, 112
Language Concentration (French Major)  12, 16, 111
Language Placement  79, 110
Latin American Studies Concentration (Interdisciplinary Programs Major)  12, 16, 105
Latin American Studies Courses  246
Latin American Studies Minor  11, 18, 105
Latin Concentration (Classics Major)  11, 16, 98
Latin Courses  246
Latin Minor  11, 18, 98
Law, College of  204
Law Library  197
Learning Communities  33
Lecture  9
Legal Studies Concentration (Interdisciplinary Programs Major)  12, 16, 105
Legal Studies Courses  246
Library (see University Libraries)
Linguistics Concentration (Interdisciplinary Programs Major)  12, 16, 106
Linguistics Courses  246
Linguistics Minor  11, 18, 106
Literary Emphasis Option (Russian Major)  12, 17, 111
Literature Concentration (English Major)  11, 16, 101
Literature Concentration (French Major)  12, 16, 111
Literature Concentration (Spanish Major)  12, 17, 111
Logistics and Transportation Courses  247
Logistics and Transportation Major  13, 16, 130, 139
Lower Division (LD)  9

-M-

Major  9
Majors  10, 16, 44
Management Courses  247
Management, Department of  13, 137
Management Major  13, 16, 130, 138
Map Library  196, 197
Marketing Courses  247
Marketing, Logistics, and Transportation, Department of  13, 139
Marketing Major  14, 16, 130, 141
Materials Science and Engineering Courses (see Engineering Materials and Science Courses)
Materials Science and Engineering, Department of  15, 183
Materials Science and Engineering Major  15, 16, 171, 184
Materials Science and Engineering Minor  15, 18, 173, 184
Mathematics and Science Concentration (Pre-Teaching Major)  13, 17, 87
Mathematics Concentration (Pre-Teaching Major)  13, 17, 87
Mathematics Courses  247-249
Mathematics, Department of  12, 108
Mathematics Education Courses  249
Mathematics Major  12, 16, 81, 108
Matriculation  9
Maximum Hours per Term  42
Mechanical, Aerospace, and Biomedical Engineering, Department of  15, 185
Mechanical Engineering Courses (see Engineering Mechanical Courses)
Mechanical Engineering Major  15, 16, 171, 185
Media Arts Concentration (Studio Art Major)  10, 17, 90
Media Arts Courses (see Art Media Arts Courses)
Medical Biology/Memorial Research Center  109
Medical Technology Courses  249
Medicinal Technology Major  13, 16, 86
Medieval Studies Concentration (Interdisciplinary Programs Major)  12, 16, 106
Medieval Studies Courses  249
Medieval Studies Minor  12, 18, 107
Microbiology Concentration (Biological Sciences Major)  11, 16, 95, 110
Microbiology Courses  249
Microbiology, Department of  109
Middle School Education Minor  15, 18, 154, 169
Military Commission  38
Military Science and Leadership Courses  250
Military Science and Leadership Curriculum  201
Military Science and Leadership, Department of  199
Minimum Class Size  40
Minor  9, 10, 18, 44
Minority Student Affairs  29
Modern Foreign Languages and Literatures, Department of  12, 110
Multidisciplinary Concentration (Special Education Major)  15, 17, 154, 168
Multidisciplinary Sequence Option (Economics Major)  13, 16, 134
Music Education Concentration (Music Major)  12, 16, 114
Music Education Courses  250
Music Ensemble Courses  251
Music General Courses  251
Music History Courses  251
Music Instrumental Courses  251
Music Jazz Courses  251-252
Music Keyboard Courses  252
Music Library  196, 197
Music Major (Bachelor of Arts)  12, 16, 81, 122
Music Major (Bachelor of Music)  12, 16, 81, 114-122
Music Minor  12, 18, 122
Music Performance Courses  252
Music, School of  12, 113
Music Technology Courses  252
Music Theory Courses  252-253
Music Voice Courses  253

-N-

National Student Exchange (NSE)  33
No/Credit (N/C) Grade  41
Nuclear Engineering Courses (see Engineering Nuclear Courses)
Nuclear Engineering, Department of  15, 187
Nuclear Engineering Major  15, 17, 171, 188
Nuclear Medicine Technology Concentration (Pre-Professional Programs Major) 13, 16, 85
Nuclear Medicine Technology Courses 253
Nursing, College of 15, 189
Nursing Courses 253-254
Nursing Major 16, 17, 190-191
Nutrition Courses 254
Nutrition, Department of 14, 153, 164
Nutrition Major 14, 17, 154, 164
Nutrition Minor 14, 18, 154, 165

Office of Information Technology (OIT) 31
Office of the Bursar 2, 9, 25, 27, 42, 43
Office of the University Registrar 2, 9, 25, 27, 36, 40, 41, 42, 43, 44
Opportunities for High-Achieving Students 38
Option 9
Organ Concentration (Music Major) 12, 16, 118

Painting Concentration (Studio Art Major) 10, 17, 91
Painting Courses (see Art Painting Courses)
Parking and Transportation 32
Pedagogy Option (Dance Minor) 14, 18, 167
Performance Option (Dance Minor) 14, 18, 167
Persian Courses 254
Petitioning Process 40
Phi Beta Phi Arrowmont School of Arts and Crafts (see Arrowmont)
Philosophy Courses 254-255
Philosophy, Department of 13, 123
Philosophy Major 13, 17, 81, 123
Philosophy Minor 12, 18, 123
Photography Courses (see Art Media Arts Courses)
Physical Education Activity Courses 255
Physics and Astronomy, Department of 13, 123
Physics Courses 255-256
Physics Major 13, 17, 81, 123
Physics Minor 13, 18
Piano Concentration (Music Major) 12, 16
Piano Pedagogy Concentration (Music Major) 12, 17, 119
Plagiarism 9, 38
Planning Courses 256
Plant Biology Concentration (Biological Sciences Major) 11, 16, 95, 96
Plant Science and Landscape Systems Courses 256-257
Plant Sciences and Landscape Systems Major 10, 17, 47, 66
Plant Sciences and Landscape Systems Minor 10, 18, 48, 69
Plant Sciences, Department of 10, 47, 65
Political Science Courses 257-258
Political Science, Department of 13, 124
Political Science Major 13, 17, 81
Political Science Minor 13, 18, 124
Portuguese Courses 258
Portuguese-Language and World Business 11, 16, 112
Portuguese Minor 12, 18, 81, 113
Pre-Dental Concentration (Pre-Professional Programs Major) 13, 16, 82
Pre-Medical Concentration (Pre-Professional Programs Major) 13, 16, 83
Pre-Pharmacy Concentration (Pre-Professional Programs Major) 13, 16, 83
Pre-Physical Therapy Concentration (Pre-Professional Programs Major) 13, 16, 84
Pre-Professional Concentration (Food Science and Technology Major) 10, 16, 47, 61
Pre-Professional Programs (College of Arts and Sciences) 11, 16, 78, 82
Prerequisite (Prereq.) 9, 41
Pre-Teaching Major (College of Arts and Sciences) 13, 17, 86
Pre-Veterinary Medicine (3+1) Concentration (Animal Science Major) 10, 16, 47, 54
Pre-Veterinary Medicine (College of Arts and Sciences) 13, 17, 85
Printmaking Concentration (Studio Art Major) 10, 17, 91
Printmaking Courses (see Art Printmaking Courses)
Production/Business Concentration (Animal Science Major) 10, 16, 47, 53
Professional and Personal Development 206
Proficiency Examination 9, 43, 98, 110, 114
Program Assessment and Improvement Through Student Evaluation 38
Programs Abroad 30
Progression Requirements 9
Provost (see Vice-President and Provost)
Psychology Courses 258-259
Psychology, Department of 13, 124
Psychology Major 13, 17, 81, 125
Psychology Minor 13, 18, 126
Public Administration Concentration (Political Science Major) 13, 17, 124
Public Administration Major 13, 17, 130, 143
Public Health Courses 259
Public Horticulture Concentration (Plant Sciences and Landscape Systems Major) 10, 17, 47, 68
Public Relations Concentration (Advertising Major) 14, 16, 147, 149
Public Relations Courses 259

Radiological Engineering Concentration (Nuclear Engineering Major) 15, 17, 188
Reading Education Courses 259
Readmission 25, 43
Recreation and Leisure Studies Courses 259-260
Recreational and Leisure Studies Major 14, 17, 154, 165
Re-entry Students 24
Refund/Charge of Fees for Dropped Courses 27
Refund/Charge of Fees for Withdrawal 27
Refunds 27
Registrar (see Office of the University Registrar)
Registration 9
Reinstatement Fee 26
Religious Studies Courses 260-261
Religious Studies, Department of 13, 125
Religious Studies Major 13, 17, 81, 125
Religious Studies Minor 13, 18, 126
Repeating Courses 42
Reserve Officers Training Corps (ROTC) 199
Residency Classification 25
Restaurant and Foodservice Management Concentration (Hotel and Restaurant Administration Major) 14, 16, 154, 160
Retail and Consumer Sciences Courses 261
Retail and Consumer Sciences Major 14, 17, 154, 161
Retail and Consumer Sciences Minor 14, 18, 154, 161
Retention Standards, Undergraduate 43
Returned Check Service Fee 26
Rhetoric and Writing Concentration (English Major) 11, 16, 101
RN Track (Nursing Major) 15, 191
Rural Sociology 261
Russian Courses 261-262
Russian Major 12, 17, 81, 111, 112
Russian Minor 12, 18, 113

Sacred Music Concentration–Organ Track (Music Major) 12, 17, 119
Sacred Music Concentration–Piano Track (Music Major) 12, 17, 120
Sacred Music Concentration–Voice Track (Music Major) 12, 17, 120
Safety Courses 282
Satisfactory (S) Grade 41
Satisfactory/No Credit Grading 9, 41, 78
Scholarships and Grants 28
Science Concentration (Food Science and Technology Major) 10, 16, 47, 60
Science Concentration (Pre-Teaching Major) 13, 17, 87
Science Education Courses 262
Science/Technology Concentration (Animal Science Major) 10, 16, 47, 54
Science/Technology Concentration-Pre-Veterinary Medicine Concentration (Animal Science Major) 10, 16, 47, 54
Sculpture Concentration (Studio Art Major) 10, 17, 91
Sculpture Courses (see Art Sculpture Courses)
Second Majors 44
Second Minors 44
Secondary Education Minor 15, 18, 154, 169
Section 9
Security Information 23
Semester 9
Seminar 9
Senior and Disabled Students 24
Senior General Education Test 38
Seniors Eligible for Graduate Credit 39
Sequence 9
Service Management Concentration (Recreation and Leisure Studies Major) 14, 17, 154, 165
Social Science Education Courses 262
Social Security Number Use 38
Social Work, College of 15, 193
Social Work Courses 262
Social Work Library (Nashville) 196, 197
Social Work Major 15, 14, 194
Sociology Courses 262-263
Sociology, Department of 13, 126
Sociology Major 13, 17, 81, 126
Sociology Minor 13, 18, 126
Soil Science Concentration (Environmental and Soil Sciences Major) 10, 16, 47, 58
Soil Sciences Courses (see Environmental and Soil Sciences Courses)
Spanish Courses 263-264
Spanish Major 12, 17, 81, 111, 112
Spanish Minor 12, 18, 113
Special Collections (Library) 196, 197
Special Education Courses 264
Special Education Major 15, 17, 154, 167
Special State and Federal Laws for Educational Purposes 38
Speech Communication Courses 264-265
Speech Communication Major 14, 17, 149
Speech Communication Minor 14, 18, 148, 150
Speech Pathology Courses (see Audiology and Speech Pathology Courses)
Speech Pathology Major 11, 17, 81, 94
Sport and Leisure Studies, Department of 14, 153, 165
Sport Management Courses 265
Sport Management Major 14, 17, 154, 166
Sport Studies Courses 265
Statistics Courses 265-266
Statistics, Department of 14, 143
Statistics Major (College of Arts and Sciences) 13, 17, 81, 126
Statistics Major (College of Business Administration) 13, 14, 17, 126, 130, 144
Statistics Minor (College of Arts and Sciences) 13, 18, 126
String Emphasis (Music Education Concentration) 12, 16, 115-116
Strings Concentration (Music Major) 12, 17
Student Affairs and Academic Services 29
Student Affairs, Division of 2
Student Athletes, Special Requirements for 38
Student Counseling Services Center 32
Student Employment 29
Student Financial Aid 27
Student Health Service 32
Student Judicial Affairs, Office of 33
Student Loans 28
Student Orientation, Office of 33
Student Rights and Responsibilities 35
Student-Initiated Concentration (Religious Studies Major) 13, 17, 125
Studio Art Major (Bachelor of Art) 10, 17, 81, 92
Studio Art Major (Bachelor of Fine Arts) 10, 17, 81, 90-92
Studio Art Minor 10, 18, 93
Studio Music and Jazz Concentration (Music Major) 12, 17, 121
Survey Course 9
Syllabus 9

-T-

Teacher Education, Admission 155
Teacher Licensure 38
Teaching Minors 15, 18, 154, 169
Technical Communications Concentration (English Major) 11, 16, 102
Technology Fee 26
Technology/Business Concentration (Food Science and Technology Major) 10, 16, 47, 61
Term 9
Theatre Courses 266
Theatre, Department of 13, 126
Theatre Major 13, 17, 81, 126
Theatre Minor 13, 18, 126

Theory and Practice in Teacher Education Courses 266
Theory and Practice in Teacher Education, Department of 15, 153, 167
Theory/Composition Concentration (Music Major) 12, 17, 121
Therapeutic Recreation Concentration (Recreation and Leisure Studies Major) 14, 17, 154, 166
Timetable of Classes 9, 25, 26, 27, 42, 44
Title II, HEA Compliance Report 156
Track 9
Traditional Option (Economics Major) 13, 16, 134
Transcript 9
Transfer Applicants 23
Transportation Fee 26
Turfgrass Management Concentration (Plant Sciences and Landscape Systems Major) 10, 17, 47, 69

-U-

Undergraduate Admissions, Office of 2, 23
Undergraduate Council 37
University Conference Center 206
University Fees 25
University Honors Courses 266-267
University Honors Program 39, 45, 195
University Libraries 196-197
University Outreach and Continuing Education 205
University Program and Services Fee 26
University Student 35, 40, 43
University Studies 198
University Studies Courses 267
University, The 21
Upper Division (UD) 9
Upper-Level Distribution Requirements (College of Arts and Sciences) 80
Urban and Regional Planning, Department of 127
Urban Studies Concentration (Interdisciplinary Programs Major) 12, 16, 107
Urban Studies Courses 267
Urban Studies Minor 12, 18, 107

-V-

Veterinary Medicine, College of 204
Vice-President and Provost, Office of 2, 38, 40
Video Art Courses (see Art Media Arts Courses)
Visiting Students 24
Vocal Emphasis (Music Education—Vocal/General Concentration) 12, 16, 116-118
Voice Concentration (Music Major) 12, 17, 121
Voice Courses (see Music Voice Courses)
VOLXpress 26

-W,X,Y,Z-

Waiver of Fees 27
Watercolor Concentration (Studio Art Major) 10, 17, 91
Wildland Recreation Concentration (Forestry Major) 10, 16, 47, 63
Wildlife and Fisheries Science Courses 267
Wildlife and Fisheries Science Major 10, 17, 47, 64
Wind/Percussion Emphasis (Music Education Concentration) 12, 16, 114-115
Withdrawal (W) 9, 41
Withdrawing from the University 42
Withdrawn Failing (WF) 41
Withdrawn Passing (WP) 41
Women’s Center 33
Women’s Studies Courses 268
Women’s Studies Minor 12, 18, 107
Woodwind, Brass, and Percussion Instruments Concentration (Music Major) 13, 17, 122
Writing Center 33, 40
Writing Competence 40