individuals and businesses in Knoxville and surrounding communities. Courses are offered on the University campus and at selected off-campus locations. Courses are taught by University faculty, staff, and community experts. Courses are also delivered "on-site" for business clients, with instructional services tailored to the needs of each individual group.

Business topics include career planning and small business development. Personal interest topics range from antiques, computers and dance to gardening, music and sports.

There are also courses which meet the requirements of the state or other agencies for certification in real estate, mortage, and financial planning. The department co-sponsors the Smoky Mountain Field School with Great Smoky Mountains National Park.

For further information or to register, contact UT Community Programs, 600 Henley Street, Suite 105, Knoxville, TN 37998-4110, telephone (423) 974-0100, fax (423) 974-0154 or send e-mail to UTCommunity@gateway.ceu.utk.edu.

DEPARTMENT OF DISTANCE EDUCATION AND INDEPENDENT STUDY

Director: David F. Holden, Ph.D.
Assistant Director: Samuel A. Cain, M.S., State University of New York (Stony Brook); Laurel L. Thomas, M.S., State University of New York (Syracuse). Assistant Director: Samuel A. Cain, M.S., State University of New York (Stony Brook); Laurel L. Thomas, M.S., State University of New York (Syracuse).

INDEPENDENT STUDY

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INDEPENDENT STUDY
Following course descriptions in this category are the designators F, S, Su, A, O, E. These indicate the semesters Fall, Spring, Summer, Alternate Odd Year (A), or Alternate Even Year (O). They are listed by semester, based on the date the course was first offered during the 20th century. Courses taken during the Summer Semester are counted as credit courses only if the student is on academic probation or if the student is registered for at least 12 semester hours during the Fall or Spring semester. Courses of study are made available to students on a regular schedule, and students are encouraged to consult the follow-up course descriptions. Every Semester in which a course is normally offered and are intended as an aid to students planning their programs of study.

ACCOUNTING (009)

201 Principles of Financial Accounting (3) Introduction to financial accounting theory and practice with emphasis on the role of financial information in business decisions. Prerequisite to all other courses in Accounting. Prereg: Mathematics 110 or 123. E

202 Principles of Managerial Accounting (3) Introduction to managerial and cost accounting concepts with emphasis on use of accounting data by managers in planning operations, controlling activities, and decision-making. Prereg: 201. E


321 Cost and Managerial Accounting (3) Analysis of costing problems and use of the information system in planning, organizing, and controlling activities. Topics include cost behavior, cost prediction, budgeting, standard cost accounting, accounting for special situations. Prereg: 202. Prereg or Coreg: Management 303. E


411 Financial, Compliance, and Operational Auditing (3) Role of auditing in society from an internal and external perspective. Theory of internal control, audit risk, and sampling techniques. Auditing methodology, role of internal control and relational sampling in auditing. Review auditing, operational auditing, compliance auditing, and application of auditing procedures to specific transaction cycles. Prereg: 202. E

415 Financial, Compliance, and Operational Auditing (3) Role of auditing in society from an internal and external perspective. Theory of internal control, audit risk, and sampling techniques. Auditing methodology, role of internal control and relational sampling in auditing. Review auditing, operational auditing, compliance auditing, and application of auditing procedures to specific transaction cycles. Prereg: 202. E

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

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

431 Federal Income Taxation (3) Fundamentals of gross income, deductions, credits, and tax determination. Introduction to basic concepts of corporations and partnerships. Prereg: 311 with a C or better, or consent of instructor. Prereg: 202. E

431 Federal Income Taxation (3) Fundamentals of gross income, deductions, credits, and tax determination. Introduction to basic concepts of corporations and partnerships. Prereg: 311 with a C or better, or consent of instructor. Prereg: 202. E

434 Understanding (012)

201 Introduction to South Africa (3) Multidisciplinary approach to the African-American experience through the Civil War period which examines such issues as African-American societies, the institution of slavery, the development of African-American culture, the beginnings of African-American protest tradition, and the Civil War and Reconstruction. Prereg: 202. Prereg to African-American Studies 202 (Multidisciplinary approach to the African-American experience from the Civil War to the Civil Rights era which focuses on such topics as African-American social and urban societies, the African-American church and education, African-American intellectual and political institutions.) E

211 Introduction to African Studies (2) Multidisciplinary approach to the study of African traditions, cultures, religions, political economies, prescriptive democracies, and states from the first through the sixteenth century. Prereg: 202. Prereg to African-American Studies 202 (Multidisciplinary approach to the African-American experience from the Civil War to the Civil Rights era which focuses on such topics as African-American social and urban societies, the African-American church and education, African-American intellectual and political institutions.) E

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

311 Introduction to African-American Studies (3) (Same as History 310.) E

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

317 African-American Anthropology (3) (Same as Anthropology 317.) E

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

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

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

352 Topics in African-American Literature (3) (Same as Religious Studies 352.) E

352 Topics in African-American Literature (3) (Same as Religious Studies 352.) E

480 Advertising Issues (3) Examination 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. Prereg: 202. E

490 Special Topics (1-3) 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. Prereg: 202. E

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

AFRICAN AND AFRICAN- AMERICAN STUDIES (022)

202 Introduction to African-American Studies (3) Multidisciplinary approach to the African-American experience through the Civil War period which examines such issues as African-American societies, the institution of slavery, the development of African-American culture, the beginnings of African-American protest tradition, and the Civil War and Reconstruction. Prereg: 202. Prereg to African-American Studies 202 (Multidisciplinary approach to the African-American experience from the Civil War to the Civil Rights era which focuses on such topics as African-American social and urban societies, the African-American church and education, African-American intellectual and political institutions.) E

211 Introduction to African Studies (2) Multidisciplinary approach to the study of African traditions, cultures, religions, political economies, prescriptive democracies, and states from the first through the sixteenth century. Prereg: 202. Prereg to African-American Studies 202 (Multidisciplinary approach to the African-American experience from the Civil War to the Civil Rights era which focuses on such topics as African-American social and urban societies, the African-American church and education, African-American intellectual and political institutions.) E

211 Introduction to African Studies (2) Multidisciplinary approach to the study of African traditions, cultures, religions, political economies, prescriptive democracies, and states from the first through the sixteenth century. Prereg: 202. Prereg to African-American Studies 202 (Multidisciplinary approach to the African-American experience from the Civil War to the Civil Rights era which focuses on such topics as African-American social and urban societies, the African-American church and education, African-American intellectual and political institutions.) E

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

311 Introduction to African-American Studies (3) (Same as History 310.) E

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

317 African-American Anthropology (3) (Same as Anthropology 317.) E

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

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

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

352 Topics in African-American Literature (3) (Same as Religious Studies 352.) E

352 Topics in African-American Literature (3) (Same as Religious Studies 352.) E

152
African-American Communities in Urban America (3) Focuses on historical and current social, economic, and political forces in African-American communities, with emphasis on race and poverty, with a special emphasis on the family, women, male, leisure, homelessness, education, and discrimination on African-American males in America.

African-American Women in American Society (3) Focuses on historical and contemporary social, economic, and political forces in African-American society with a special emphasis on the family, women, male, leisure, homelessness, education, and discrimination on African-American males in America.

AGRICULTURE (088)

101 Perspectives in Agriculture and Associated Natural Resources (3) Historical development, current issues and problems in agriculture and the environment. Prerequisites: Senior standing. E, S, F

215 Microcomputer Applications to Problem Solving (3) 10 hours. Includes use of software as needed for problem analysis, decision making, management decision problems in farm and non-farm environments. Maximum of 6 hours. S, F

220 Agricultural Microeconomics (3) Application of economic principles to agriculture. Production, consumption, firm behavior, and efficiency in the food and fiber markets. Prerequisites: 3rd-year standing. Sp

240 Farm Business Management (3) Principles and procedures for determining most profitable business operations; firm behavior, and efficiency in the food and fiber markets. Prerequisites: 3rd-year standing. Sp

320 Agricultural Policy (3) Values, goals and policy instruments for influencing natural resource use or improving environmental quality. Prerequisites: Economics 360 or consent of instructor. Prerequisites: 3rd-year standing. Sp

345 Agricultural Experience, Leadership and Adult Education (3) Supervised work experience in approved educational or experiential learning programs. Opportunities include but are not limited to teaching, leadership training, community development, and experiential learning programs, conductingleadershipdevelopment activitiesthroughtheFutureFarmers of America. Role development of research skills. Students design and implement a research project of their choice in the field. Prerequisites: Consent of instructor. Satisfactory/No Credit grading. MUST be selected in consultation with the advisor. 6 hours. Maximum 6 hours. Prerequisites: Junior standing or consent of instructor.

340 Agricultural Price Analysis (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. Prerequisite: 301 or 311 or consent of instructor. F

345 Agricultural Microeconomics (3) Analysis of the agricultural sector, including production, consumption, and ownership and control of resources. Prerequisites: Economics 360 or consent of instructor. Prerequisites: 3rd-year standing. Sp

350 Agricultural Marketing System (3) University-level model, farm management; marketing decisions; analysis of the marketing process, marketing objectives, opportunities, and placement process. Prerequisites: Economics 360 or consent of instructor. F

355 Agribusiness Marketing and Professional Selling (3) Prin of selling in the agribusiness organization; analyzing the role of the salesperson in the agribusiness organization; understanding the marketing and sales process; analyzing the elements of the marketing process, marketing strategies, the selling process, the sales force, and the sales environment. Prerequisites: Economics 360 or consent of instructor. F

430 Seminar in Agricultural Economics and Business (1) Prerequisite: AgriEcon 220. May be repeated for different experiences up to 6 hours. Prerequisites: Junior standing or consent of instructor. S, F

440 Agricultural Policy (3) May be repeated for different experiences up to 6 hours. Prerequisites: Senior standing. S, F

445 Agricultural Microeconomics (3) Analysis of agricultural sector, including production, consumption, and ownership and control of resources. Prerequisites: Economics 360 or consent of instructor. Prerequisites: 3rd-year standing. Sp

450 Agricultural Price Analysis (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. Prerequisite: 301 or 311 or consent of instructor. F

460 Agricultural Policy (3) May be repeated for different experiences up to 6 hours. Prerequisites: Senior standing. S, F

470 Environmental Education (3) Nature of natural resources; economic efficiency as a basis for natural resource management decision problems in farm and non-farm environments. Prerequisites: Senior standing. S, F

480 African-American Communities in Urban America (3) Focuses on historical and current social, economic, and political forces in African-American communities, with emphasis on race and poverty, with a special emphasis on the family, women, male, leisure, homelessness, education, and discrimination on African-American males in America.

Agriculture and Natural Resources Honors Seminar (1) Discussion of selected topics, issues and problems related to agricultural, forestry, and natural resources. Prerequisites: Junior and senior standing. Prerequisites: Consent of advisor. S/NC. Maximum 6 hours. Satisfactory/No Credit grading. F, S

Agriculture and Natural Resources Honors Seminar (1) Discussion of selected topics, issues and problems related to agricultural, forestry, and natural resources. Prerequisites: Junior and senior standing. Prerequisites: Consent of advisor. S/NC. Maximum 6 hours. Satisfactory/No Credit grading. F, S

Agriculture and Natural Resources Honors Seminar (1) Discussion of selected topics, issues and problems related to agricultural, forestry, and natural resources. Prerequisites: Junior and senior standing. Prerequisites: Consent of advisor. S/NC. Maximum 6 hours. Satisfactory/No Credit grading. F, S
air force aerospace studies (094)

101-102 The Air Force Today (1,1) A study of the organizational structure and missions of the Air Force, its objectives, priorities, and the major activity. This course may not be counted as a major course in the College of Agriculture; it is designed to introduce to the general student and Natural Resources students to satisfy their required elective requirements.

AMERICAN STUDIES (099)

310 Introduction to American Studies (3) Emphasizes critical and creative thinking in the study and interpretation of the American experience and culture. This course is required and mandatory; it is intended to sharpen critical, analytical, and interpretive skills. It also provides the framework for further study in American Studies and related fields. Topics will include social, economic, political, and cultural aspects of American history, literature, and culture. It is recommended that students take this course as soon as possible, preferably in the first year. Discussion of student services, activities, and free time opportunities is included. Prerequisite: Advanced placement in English, or permission of the instructor. 2 hours of free time.

ANCIENT MEDITERRANEAN CIVILIZATIONS (101)

304 Asian Near Eastern Civilizations (1) (See as History 270.

305 Greek Civilization (1) (See as Classics 423.

352 Roman Civilization (1) (See as Classics 223.

380 Animal Health Management (3) (See as Animal Science 220.

391 Special Topics (3) May be repeated. Maximum 6 hours for major.

391 Foreign Study (1-15) Registration by permission of Department of Animal Science and by approval of the college. May be repeated for a maximum of 15 hours.

392 Off-Campus Study (1-15) Registration by permission of the college of American civilization and development.

5000 Independent Study (1-15) Registration by permission of the college of American civilization and development. May be repeated for a maximum of 15 hours.

510 Animal Science (113)

101 Orientation to Animal Science (1) For Animal Science majors and Animal Science Pre-vet students in this first year. Discussion of student services, activities, and free time. Prerequisite: permission of the instructor. 2 hours.

220 Anatomy and Physiology of Farm Animals (3) Analysis and comparison of structure and function in domestic animal species. Prerequisite: CSCI 101.

340 Principles of Animal Breeding (3) Genetic and management principles of selection and improvement of livestock and poultry. Prerequisite: 101.

363 Judging Poultry and Poultry Products (2) Grading of poultry and poultry products according to USDA grading standards. Prerequisite: CSCI 101.

365 Meat Animal Evaluation (2) Visual and objective techniques for evaluation of beef cattle, including facilities and restraint. Includes age and sex determination, pre- and post-natal care, identification, dehorning, castrating, docking, implanting, deprogramming, foot care, chilling and grooming, receipting and handling and marketing. 2 - 3 hours per week.

370 Horse Handling and Care (2) Proper care and feeding practices for horse-human interaction and the recommended management practices for horses. The basic behavioral characteristics of the horse, an understanding of the physical and mental parameters and their role in horse management, the impact of climate and nutrition on the horse. Prerequisite: CSCI 101. 2 hours per week.

380 Animal Nutrition, Feeds, and Ration Formulation (3) Nutritional requirements of livestock and poultry. Factors affecting milk production and milk quality. Methods and formulation of feedstuffs and principles of ration formulation. Prerequisite: 260. 2 hours and 1 lab. See as Zoology 322.

393 Animal Breeding (2) Genetic and environmental variation in domestic livestock and poultry. The impact of heredity and environment on the production and performance of livestock. Planning breeding programs for economic importance of crops and animals.

394 Meat and Veterinary Science (1) Visual and objective appraisal of quality of beef cattle, sheep and beef when slaughtered and processed.


398 Animal Health Management (3) Characteristics, symptoms, prevention, and treatment of major diseases and parasites in livestock and poultry. Prerequisite: CSCI 101.


469 Animal Science Field Study (3) Cnotes on work experience approved by the department. Off-campus work experience in public or private organizations, or internships, that give the student an opportunity to gain experience in industry and/or government. Each student must submit a written summary after program completion.

140 Independent Study in Animal Science (1-3) Approved supervised study in areas not formally presented in a course. Prereq: Senior standing and consent of instructor. E

492 Animal Science Field Study (1-6) Off-campus work experience approved by the department. Prereq: Approval. E

140 Independent Study in Animal Science (1-3) Approved supervised study in areas not formally presented in a course. Prereq: Senior standing and consent of instructor. E

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

220 Prehistoric Archaeology (3) Introduction to methods and techniques used in the study of archaeological remains and their cultural significance. Prereq: 120 or consent of instructor.

110 Human Origins (3) Survey of humanity's background, fossil record, human remains, and living race of humans.


302 Anthropology of Religion (3) (Same as Religious Studies 302.) The concept of religious behavior and ritual, society, economy, and politics. Prereq: 110 or Religious Studies 200.

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.

310 North American Indians (3) Comparative overview of American Indian cultures from prehistory to present. Prereq: 130 or consent of instructor.

312 Appalachian Culture (3) Traditional Southern Appalachi subsistence patterns and economy, social organization, beliefs and values, kinship and customs, non-material cultural aspects of individual cultures. Prereq: 130 or consent of instructor. Writing emphasis course.

413 Dynamics of Culture (3) Definition and in-depth study of major forms of culture change, ranging from evolution and diffusion to sociocultural change. Evolution of human cultures illustrated through use of archaeological, ethnohistoric, and contemporary cultures.

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.

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

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

310 North American Indians (3) Comparative overview of American Indian cultures. Prereq: 130 or consent of instructor.

312 Appalachian Culture (3) Traditional Southern Appalachian subsistence patterns and economy, social organization, beliefs and values, kinship and customs, non-material cultural aspects of individual cultures. Prereq: 130 or consent of instructor. Writing emphasis course.

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.

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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.

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

312 Appalachian Culture (3) Traditional Southern Appalachian subsistence patterns and economy, social organization, beliefs and values, kinship and customs, non-material cultural aspects of individual cultures. Prereq: 130 or consent of instructor. Writing emphasis course.

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.

320 American Cultures (3) Anthropology in the study of our own society, including such topics as ethnic communities, social classes, power structures, etc. Writing emphasis course.
The page contains a list of courses with titles and descriptions, indicating various topics covered in academic courses related to anthropology, archaeology, and architectural studies. The courses range from introductory topics to advanced studies in fields such as archaeology, comparative anatomy, architectural form, and environmental control systems. The descriptions provide an overview of the course content, prerequisites, and objectives, illustrating the breadth of study options available in these disciplines.
433 Computer Applications in Design III (3) Advanced building design with emphasis on the integration of energy efficient design strategies. Evaluation of sustainable new buildings. Prereq.: 432.


435 Advanced Environmental Control Systems (3) In-depth analysis and innovative concepts in design of heating, ventilation, and conditioning. Prereq.: 54.1.

436 Advanced Lighting Design I (3) In-depth analysis of innovative concepts in design of lighting. Prereq.: 54.1.

437 Professional Practice (3) Management and organization of the process of delivering professional design services. Includes overview of the business management functions within professional firms and fundamental concepts of management. Prereq.: 436.

438 Environmental Design (3) Principles and practice of the architect as a developer. Impact of economics, finance, and urban policy on the design and development of real estate. Open to all students.

439 Project and Construction Management (3) Principles and application of project and construction management in the building projects. Project management and administration of design and construction activities, and evaluation of design build. Prereq.: 341 and 480.1.

440 Advanced Architectural Design (6) In-depth analysis and innovative concepts in design of exterior and interior spaces. Prereq.: 437.

441 Architectural Photography (3) Photography as a design, research, and presentation medium. Application of photographic techniques, printing and processing, and the selection of materials. Prereq.: 439.

442 Building Energy Analysis II (3) In-depth analysis of innovative concepts in design of energy efficient buildings. Prereq.: 341.

443 Building Energy Analysis III (3) Advanced building energy analysis. Prereq.: 341.

444 Advanced Lighting Design II (3) Advanced lighting design concepts. Prereq.: 436.

445 Advanced Lighting Design III (3) Advanced lighting design concepts. Prereq.: 436.

446 Design of Sustainable Architecture (3) Architectural design studio emphasizing concepts for the environment, conservation of energy, conservation of land, and use of renewable resources. Prereq.: 472.

447 Structural Innovations (3) Building design with emphasis on the development of new materials, methods and innovative design. Course covers: structural concepts, design factors, materials, and techniques. Prereq.: 437.

448 Structural Innovations II (3) Building design with emphasis on the development of new materials, methods and techniques. Prereq.: 437.


456 Design of Sustainable Architecture (3) Architectural design studio emphasizing concepts for the environment, conservation of energy, conservation of land, and use of renewable resources. Prereq.: 472.
ART CERAMICS (135) 191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For non-majors only. Courses may be repeated, medium may not be repeated. Maximum 12 hours.

221 Ceramics: Handbuilding I (3) Introduction to the vocabulary, clay shaping and firing. Prereq: 101 and 102.

222 Ceramics: Throwing I (3) Introduction to throwing, shaping, bisquing and glazing. Prereq: 101 and 102.

256 Portfolio Practicum - Handbuilding (3) Internal portfolio introduction studio experience to develop work for application to Ceramics Portfolio Review. Art majors only. Not repeatable for credit. Prereq: 221, 222, and consent of Department.

256 Portfolio Practicum - Throwing (3) Internal portfolio introduction studio experience to develop work for application to Ceramics Portfolio Review. Art majors only. Not repeatable for credit. Prereq: 221, 222, and consent of Department.

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

306:1 Field Experience (1) Tasks related to teaching and professional practice including client relationships, design and professional issues including politics, economics, and media. Prereq: Determined by Department for individual topic. May be repeated. Maximum 12 hours.

350 Field Experience (1) Tasks related to teaching and professional practice including client relationships, design and professional issues including politics, economics, and media. Prereq: Determined by Department for individual topic. May be repeated. Maximum 12 hours.

354:1 Field Experience (1) Tasks related to teaching and professional practice including client relationships, design and professional issues including politics, economics, and media. Prereq: Determined by Department for individual topic. May be repeated. Maximum 12 hours.

354 Field Experience (1) Tasks related to teaching and professional practice including client relationships, design and professional issues including politics, economics, and media. Prereq: Determined by Department for individual topic. May be repeated. Maximum 12 hours.

387:1 Field Experience (1) Tasks related to teaching and professional practice including client relationships, design and professional issues including politics, economics, and media. Prereq: Determined by Department for individual topic. May be repeated. Maximum 12 hours.

387 Field Experience (1) Tasks related to teaching and professional practice including client relationships, design and professional issues including politics, economics, and media. Prereq: Determined by Department for individual topic. May be repeated. Maximum 12 hours.

ART DESIGN/GRAPHIC (136) 191 Graphic Design History I (3) Major movements and styles of graphic design from ancient to modern times, and their impact on current graphic design trends. (Cannot be used toward Art History requirement.) Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

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.

211 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. Prereq: Determined by Department for individual topic. May be repeated. Maximum 12 hours.

252 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. Prereq: Determined by Department for individual topic. May be repeated. Maximum 12 hours.

252 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. Prereq: Determined by Department for individual topic. May be repeated. Maximum 12 hours.

320 Ceramics: Portfolio Review (0) Review of prior work in graphic design. Successful completion required prior to registration for junior and senior courses. Prereq: 221 or consent of Instructor. Satisfactory/No credit only.

321 Ceramics: Handbuilding II (3) Continued investigation of the vocabulary, clay shaping and firing with an emphasis on the development of an individual style and expression. Prereq: 221.

420 Ceramics: Advanced Handbuilding I (3) Continued investigation of the content, vocabulary, and techniques as related to the development of an individual style and expression. Prereq: 221.

420 Ceramics: Advanced Throwing I (3) Continued investigation of the content, vocabulary, and techniques as related to the development of an individual style and expression. Prereq: 221.

426 Ceramics: Kiln Design (3) Designing kilns, traditions of kiln building and their role in the development of individual ideas and expression. Prereq: 221.

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

452 Graphic Design Seminar (3) Discussion of design and professional issues including politics, economics, and media. Special emphasis on new technologies and their significance to graphic design. Prereq: 351 and consent of instructor. May be repeated. Maximum 6 hours.

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

454 Editorial Illustration (3) Media and techniques as applied to editorial illustration. Prereq: 254 and successful completion of any portfolio review.

454 Editorial Illustration (3) Media and techniques as applied to editorial illustration. Prereq: 254 and successful completion of any portfolio review.

457 Computer Enhanced Graphic Design (3) Explores the use of computer systems, software and techniques as applied to advertising illustration. Prereq: 351 and consent of instructor. May be repeated. Maximum 6 hours.

504 Computer Enhanced Graphic Design (3) Explores the use of computer systems, software and techniques as applied to advertising illustration. Prereq: 351 and consent of instructor. May be repeated. Maximum 6 hours.

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

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

519 Special Topics in Drawing and Painting (3) Student or instructor-initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

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

ART EDUCATION (141) 301 Foundation of Art Education (3) Basic philosophy, psychology, and methodology of teaching art and three dimensional design, art appreciation, and art preservation. (Cannot be used toward Art History requirement.) Prereq: 221 or 222. May be repeated. Maximum 12 hours.

303 Concepts of Sculpture and Crafts (3) Processes of design, material selection, and construction, plus problem-solving techniques. Prereq: 221 or 222. May be repeated. Maximum 12 hours.

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

455 Art of the Americas (3) Survey of landmarks in painting, architecture, sculpture, and design from prehistory to the present. Two-hour lecture and one-hour discussion each week.

456 Digital Photography I (3) Studio course introducing theory and techniques of digital photography. Prerequisite: Photography 231, or permission of instructor. May be repeated. Maximum 12 hours.

457 Digital Photography II (4) Studio course continuing development of digital photography. Prerequisite: Photography 231, or permission of instructor. May be repeated. Maximum 12 hours.

461 Photography History I (3) Survey of the history of photography up to mid-twentieth century, with special attention to the art and social history of photography. Prerequisite: Photography 231, or permission of instructor. May be repeated. Maximum 12 hours.

462 History of Visual Arts (3) Seminar in history of visual arts in the United States from the Renaissance to the present. Two-hour lecture and one-hour discussion each week.

463 History of Visual Arts (3) Seminar in history of visual arts in the United States from the Renaissance to the present. Two-hour lecture and one-hour discussion each week.

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

489 Studies in Art History (3) Concentration in individual topic. May be repeated. Maximum 12 hours.

493 Independent Study (1-15) Individually selected area. For non-art majors. May be repeated. Maximum 12 hours.

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

495 Visiting Artist Seminar (3) Study and discussion of contemporary art issues conducted by different visiting artists each semester. Only for non-art majors. May be repeated. Maximum 12 hours.

ART PAINTING (138)

400 Curriculum Planning and Teaching Strategies (3) Program development, instructional methods, professional and societal issues, simulation and experimental situations, practical and theoretical training in teaching. Prerequisite: Admission to Teacher Education Program. Students for whom an equivalent course is required must enroll immediately. May be repeated. Maximum 12 hours.

411 Art of Indian Asia (3) History of Indian art with consideration of the art of Central Asia and Southeast Asia. Writing emphasis course.

413 Painting 1: Introduction (3) Capacities of oil and mixed media on canvas. Prerequisite: 214 and 314 or consent of instructor. May be repeated. Maximum 12 hours.

415 Watercolor I: Introduction (3) Capacities of transparent watercolor. Prerequisite: 101, 103 for art majors, none for non-art majors. May be repeated. Maximum 6 hours.

416 Watercolor 11 (3) Capabilities of wet and dry media in watercolor. Prerequisite: 101, 105 for art majors, none for non-art majors. May be repeated. Maximum 6 hours.

421 Digital Photography I (3) Introduction to the history and current status of digital photography. Prerequisite: Photography 231, or permission of instructor. May be repeated. Maximum 12 hours.

422 Digital Photography II (4) Continuation of exploration of digital photography. Prerequisite: Photography 231, or permission of instructor. May be repeated. Maximum 12 hours.

425 Early Christian and Byzantine Art to 1350 (3) Development of an historical and critical awareness of artistic developments in Italy and the Eastern Empire from the beginnings of media to the present. Writing emphasis course.

426 Medieval Art of the West, 800-1400 (3) Western European painting from the early Middle Ages to the High Renaissance. Writing emphasis course.

427 Seminar in Art History (3) Seminar in art history with consideration of the art of Central Asia and Southeast Asia. Writing emphasis course.

428 Medieval Art of the East, 800-1400 (3) Eastern European painting, sculpture, and architecture. Writing emphasis course. (Same as Medieval Art Studies 211.)

429 Medieval Art of the Barbizon School, Rodin, Pre-Raphaelite Brotherhood, and French Impressionists. Writing emphasis course. (Same as Medieval Art Studies 212.)

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

433 Video Art (3) Continued development of concepts and techniques for the creation of video works as an art form, with special attention to the social and aesthetic implications. Prerequisite: 235 and 330, or permission of instructor. May be repeated. Maximum 8 hours. (Same as Cinema Studies 433.)

434 Special Topics in Media Arts (3) Student or instructor initiated course offered at convenience of department. Prerequisite: Determined by department. May be repeated. Maximum 12 hours.

435 Photography III (3-6) Individual development of photographic problems and techniques. Prerequisite: 232 and 331. May be repeated. Maximum 12 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 special attention to individual projects. Prerequisite: 235 and 330, or permission of instructor. May be repeated. Maximum 8 hours. (Same as Cinema Studies 433.)

437 Film as an Art Form (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 437.)

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


450 Special Topics in Art History (3) Student or instructor initiated course offered at convenience of department. Prerequisite: Determined by department. May be repeated. Maximum 12 hours.


452 Art of the Americas (3) Student or instructor initiated course offered at convenience of department. Prerequisite: Determined by department for individual topic. May be repeated. Maximum 12 hours.

453 Artof Southern Europe :1575-1700 (3) Concentrated study of Caravaggio, Bernini, and Italian Baroque developments in all media, Spanish Baroque painting and sculpture with special attention to Velázquez. Writing emphasis course.

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

456 Digital Photography I (3) Studio course introducing theory and techniques of digital photography. Prerequisite: Photography 231, or permission of instructor. May be repeated. Maximum 12 hours.

461 Photography History I (3) Survey of the history of photography up to mid-twentieth century, with special attention to the art and social history of photography. Prerequisite: Photography 231, or permission of instructor. May be repeated. Maximum 12 hours.

462 History of Visual Arts (3) Seminar in history of visual arts in the United States from the Renaissance to the present. Two-hour lecture and one-hour discussion each week.

463 History of Visual Arts (3) Seminar in history of visual arts in the United States from the Renaissance to the present. Two-hour lecture and one-hour discussion each week.

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

489 Studies in Art History (3) Concentration in individual selected area. Prerequisite: 10 hours of art history and consent of instructor. May be repeated. Maximum 12 hours.

493 Independent Study (1-15) Individually selected area. For non-art majors. May be repeated. Maximum 12 hours.

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

ART MEDIA ARTS (134)

400 Curriculum Planning and Teaching Strategies (3) Program development, instructional methods, professional and societal issues, simulation and experimental situations, practical and theoretical training in teaching. Prerequisite: Admission to Teacher Education Program. Students for whom an equivalent course is required must enroll immediately. May be repeated. Maximum 12 hours.

413 Painting 1: Introduction (3) Capacities of oil and mixed media on canvas. Prerequisite: 214 and 314 or consent of instructor. May be repeated. Maximum 12 hours.

415 Watercolor I: Introduction (3) Capacities of transparent watercolor. Prerequisite: 101, 103 for art majors, none for non-art majors. May be repeated. Maximum 6 hours.

416 Watercolor 11 (3) Capabilities of wet and dry media in watercolor. Prerequisite: 101, 105 for art majors, none for non-art majors. May be repeated. Maximum 6 hours.

421 Digital Photography I (3) Introduction to the history and current status of digital photography. Prerequisite: Photography 231, or permission of instructor. May be repeated. Maximum 12 hours.

422 Digital Photography II (4) Continuation of exploration of digital photography. Prerequisite: Photography 231, or permission of instructor. May be repeated. Maximum 12 hours.

425 Early Christian and Byzantine Art to 1350 (3) Development of an historical and critical awareness of artistic developments in Italy and the Eastern Empire from the beginnings of media to the present. Writing emphasis course. (Same as Medieval Art Studies 211.)
ART PRINTMAKING (132)

191 Introduction to Studio Art: Various Media (3) Individual workshops for various creative disciplines. For non-major only. Courses may be repeated. Maximum may not be repeated. Maximum 12 hours.

262 Intaglio I (3) Metal plate image printing in traditional and contemporary methods of engraving, drypoint, aquatint, and other mature processes. Prerequisite: Consent of instructor. May be repeated. Maximum 12 hours.

263 Lithography I (3) Stone and aluminum plate lithography. Prerequisite: Consent of instructor. May be repeated. Maximum 12 hours.

264 Screen Printing I (3) Screen printing as a fine art medium. Explorations with professional printing techniques and equipment. Prerequisite: Consent of instructor. May be repeated. Maximum 12 hours.

269 Special Topics in Printing (3) Student or instructor initiated course offered at convenience of department. Prerequisite: Consent of instructor. May be repeated. Maximum 12 hours.

403 Individual Problems (3) Prerequisite: Consent of instructor initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

ART SCULPTURE (143)

191 Introduction to Studio Art: Various Media (3) Individual workshops for various creative disciplines. For non-major only. Courses may be repeated. Maximum may not be repeated. Maximum 12 hours.

242 Life Sculpture I (3) Modeling techniques using wax, clay, ceramic, and steel casting materials. May be repeated. Maximum 6 hours.

340 Sculpture Portfolio Review (0) Review of prior work in sculpture. Successful completion required prior to registration for junior and senior courses. Prerequisite: Consent of department. Satisfactory/No credit only. May be repeated. Maximum 6 hours.

ART SCHOOL OF ARTS AND CRAFTS

160 Special Topics (2-4) Interdisciplinary student or instructor initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

220 Ceramics IV (4) Beginning to intermediate. May be repeated. Maximum 12 hours.

230 Philosophy of Art (2-4) Beginning to intermediate. May be repeated. Maximum 12 hours.

250 Metal Design (4-6) Beginning to advanced. May be repeated. Maximum 12 hours.

340 Sculpture Portfolio Review (0) Review of prior work in sculpture. Successful completion required prior to registration for junior and senior courses. Prerequisite: Consent of department. Satisfactory/No credit only. May be repeated. Maximum 6 hours.

341 Sculpture I (3) Further exploration and development of personal form. May be repeated. Maximum 6 hours.

342 Steel Sculpture I (3) Further exploration of casting concepts and materials. Prerequisite: 241 and 242 or consent of instructor. May be repeated. Maximum 6 hours.

343 Metal Casting I (3) Further exploration of casting concepts and materials. Prerequisite: 241 and 242 or consent of instructor. May be repeated. Maximum 6 hours.

345 Steel Sculpture II (3) Metalworking techniques and equipment. Prerequisite: 241 and 242 or consent of instructor. May be repeated. Maximum 6 hours.

346 Mixed Media Sculpture I (3) Further exploration of metalworking techniques and equipment. Prerequisite: 241 and 242 or consent of instructor. May be repeated. Maximum 6 hours.

400 Special Topics (2-4) Interdisciplinary student or instructor initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

404 Individual Problems (3) Prerequisite: Consent of instructor initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

460 Fibers (2-4) Interdisciplinary student or instructor initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

463 Independent Study (1-15) May be repeated. Maximum 12 hours.

464 Metal Casting II (3) Further exploration of casting concepts and materials. May be repeated. Maximum 6 hours.

465 Painting IV (6) Advanced painting stressing individual approaches. May be repeated. Maximum 8 hours.

490 Wood (2-4) Interdisciplinary student or instructor initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

493 Independent Study (1) Beginning to advanced. May be repeated. Maximum 12 hours.

494 Individual Problems (3) Prerequisite: Consent of instructor initiated course offered at convenience of department. May be repeated. Maximum 12 hours.
reasoning; stellar birth, evolution and death as a chain of solar systems in light of current knowledge and scientific method. Components of the solar system which introduce the basic vocabulary of astronomy and composition, structure, and dynamics of the universe. 151-152 Introductory Astronomy (4,4) Survey of course, with accompanying laboratory, for students with current interest in Astronomy and Astrophysics. May be repeated for credit with consent of department. Maximum 9 hours.

491 Chinese and Japanese Internship (1-15) Career-oriented internship. Must be taken in sequence. 4 hours lecture-demonstration. Only one of these sequences 151-152, 161-162, or 217-218 may be taken for credit.

217-218 Honors: Introductory Astronomy (4,4) Introductory and astrophysical. May be repeated for credit with consent of instructor. Maximum 9 hours.

411 Astrophysics (3) Development of analytical physical principles of the galactic structure of the universe, stellar and interstellar matter, and planetary systems. May be repeated for credit with consent of instructor. Maximum 9 hours.

410 Astrophysics (3) Development of analytical physical principles of the galactic structure of the universe, stellar and interstellar matter, and planetary systems. May be repeated for credit with consent of instructor. Maximum 9 hours.

151-152 Introductory Astronomy (4,4) Survey of course, with accompanying laboratory, for students with current interest in Astronomy and Astrophysics. May be repeated for credit with consent of department. Maximum 9 hours.

411 Astrophysics (3) Development of analytical physical principles of the galactic structure of the universe, stellar and interstellar matter, and planetary systems. May be repeated for credit with consent of instructor. Maximum 9 hours.

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151-152 Introductory Astronomy (4,4) Survey of course, with accompanying laboratory, for students with current interest in Astronomy and Astrophysics. May be repeated for credit with consent of department. Maximum 9 hours.
the application of biochemical principles and techniques with applications to biological systems.

Biology 220. Major. May be repeated. Prereq: 410. Limited to undergraduates and by consent of instructor. Lecture/presentations and small team discussions. Required of (but not limited to) Threshold Biology Scholars. Prereq: 6 hours of 200 or above. Permission of instructor required.

307 Honors Seminar in Research Skills (2) Technical and critical thinking skills necessary for participation in biological research. Lecture/presentations and seminar. Pre-assigned themes and discussion. Required (of but not limited to) Threshold Biology Scholars. Prereq: 6 hours of 200 or above. Permission of instructor required.

308 Honors Practical in Biotechnology (3-5) Rotation through 5-6 modules of required experience in part-time laboratories. Required (of but not limited to) Threshold Biology Scholars. Prereq: 6 hours of 200 or above. Permission of instructor required.


398 Honors Practicum in Biological Research (1-5) Reading and analysis of primary research literature. Considerable written exercise and presentation of findings. May be repeated. Limited to Threshold Biology Scholars. Prereq: 8 hours of 200 or above.

BIOSYSTEMS ENGINEERING (O44)

103 Introductory Design and Fabrication (1) Examine design process and strategies for the development of biosystems engineering projects. Through hands-on experience and class discussions, investigate the role of design in the development of biosystems engineering projects, through lab experiences, design competition, and field trips to production facilities. 2 lab hours. Prereq: 101-102.

104 Design Apprenticeship (1) Introduction to the design process: the development of biosystems engineering projects. Examination of design process and new designs. Experience with fundamental tools, machinery and systems design. 2 hour lab. Prereq: 101-102.

201 Career Opportunities (1) Activities and opportunities in the field of biosystems engineering. Internships, career development, and job searching. Required for all students in the biosystems engineering major. 2 hour lecture, 1 hour discussion/laboratory. Laboratories involving the design and fabrication of biosystems engineering projects. Prereq: 101-102.

203-204 Introductory Design and Fabrication (1) Examine design process and strategies for the development of biosystems engineering projects. Through hands-on experience and class discussions, investigate the role of design in the development of biosystems engineering projects, through lab experiences, design competition, and field trips to production facilities. 2 lab hours. Prereq: 101-102.

231 Power Units and Machinery (3) Diesel engine theory and dynamics. Thermal and mechanical analysis of diesel engine components. Design of mechanical and thermal systems. Design of simple systems with emphasis on thermal and energy management. 3 hours lecture, 1 hour discussion/laboratory. Laboratory involving the design and fabrication of biosystems engineering projects. Prereq: 101-102.

243 Material and Energy Flows in Biological Systems (3) Analysis of biochemical and biophysical processes on the biosphere, including energy and material flows. 3 hours lecture, 1 hour discussion/laboratory. Laboratory involving the design and fabrication of biosystems engineering projects. Prereq: 101-102.

245 Soil and Water Conservation (3) Hydrologic, hydrogeologic and engineering principles of soil and water conservation. Design of systems to manage water resources. 3 hours lecture, 1 hour lab and 1 hour discussion/laboratory. Laboratory involving the design and fabrication of biosystems engineering projects. Prereq: 101-102.

303 Power Units and Machinery (3) Diesel engine theory and dynamics. Thermal and mechanical analysis of diesel engine components. Design of mechanical and thermal systems. Design of simple systems with emphasis on thermal and energy management. 3 hours lecture, 1 hour discussion/laboratory. Laboratory involving the design and fabrication of biosystems engineering projects. Prereq: 101-102.

331 Power Units and Machinery (3) Diesel engine theory and dynamics. Thermal and mechanical analysis of diesel engine components. Design of mechanical and thermal systems. Design of simple systems with emphasis on thermal and energy management. 3 hours lecture, 1 hour discussion/laboratory. Laboratory involving the design and fabrication of biosystems engineering projects. Prereq: 101-102.

343 Material and Energy Flows in Biological Systems (3) Analysis of biochemical and biophysical processes on the biosphere, including energy and material flows. 3 hours lecture, 1 hour discussion/laboratory. Laboratory involving the design and fabrication of biosystems engineering projects. Prereq: 101-102.

350 Soil and Water Conservation (3) Hydrologic, hydrogeologic and engineering principles of soil and water conservation. Design of systems to manage water resources. 3 hours lecture, 1 hour lab and 1 hour discussion/laboratory. Laboratory involving the design and fabrication of biosystems engineering projects. Prereq: 101-102.
421 Bioenergy Systems Engineering II (3) Cumbre on the design of engines, intake and exhaust systems, heat transfer, mass transfer, and engine performance. Introduction to alternative energy sources and systems. Lecture 3 hours and laboratory 2 hours. Prerequisite: 420 or consent of instructor. Fall, Spring, Summer.

432 Infrared and Waste Management System Design (3) Design of infrared and agricultural waste management systems with consideration given to thermal, chemical, and physical properties. Use of computer models to simulate system performance. Laboratory 3 hours. Prerequisite: 315 or consent of instructor. Spring.

433 Biomass Hydraulics: Power System Design (3) Function and operational characteristics of hydraulic systems; pumps, fans, turbines, and hydraulic drives. Turbines, hydraulics, valves, and control systems. Laboratory 3 hours. Prerequisite: 310 or consent of instructor. Fall.

457 Spatial Problems in Biosystems Engineering (1-3-3) Selected topics in spatial problems and report of problems. May be repeated, not more than 9 hours.

460 Selected Topics in Biosystems Engineering (1-3-3) Current trends and problems in agricultural engineering. May be repeated, not more than 9 hours.

BIOSYSTEMS ENGINEERING TECHNOLOGY (194)

500-699 Special Projects of materials in wood, metal, concrete, plastics and composites, design and performance of materials and components. 1-3 hours. May be repeated for credit. Maximum 45 hours.

512 Surveying (3) Measurement of distances, angles, and areas. Principles of surveying; measurements; field mathematics; and computer applications. Laboratory 2 hours. Prerequisite: Engr. Math 119. Fall, Spring, Summer.

542 Field and Process Engineering Technology (3) Application of physical science and engineering principles to agriculture and food processes. Food handling, drying, extrusion, processes involved in mixing, and mixing equipment. Laboratory 3 hours. Prerequisite: Introduction to Biosystems and Bioprocessing Technology. Fall.

543 Agronomic Machine and Tractors (3) Farm machinery and equipment; fundamentals of agricultural machinery systems; tractor power ratings, engine and transmission systems; hydraulics, steering, and braking systems. Laboratory 3 hours. Prerequisite: Introduction to Biosystems and Bioprocessing Technology. Fall.

544 Agricultural Machine and Tractors (3) Farm machinery and equipment; fundamentals of agricultural machinery systems; tractor power ratings, engine and transmission systems; hydraulics, steering, and braking systems. Laboratory 3 hours. Prerequisite: Introduction to Biosystems and Bioprocessing Technology. Fall.

545 Advanced Agronomic Machine and Tractors (3) Farm machinery and equipment; fundamentals of agricultural machinery systems; tractor power ratings, engine and transmission systems; hydraulics, steering, and braking systems. Laboratory 3 hours. Prerequisite: Introduction to Biosystems and Bioprocessing Technology. Fall.

550 Agricultural Waste Management and Pollution Control (1-3-3) Biological and physical-chemical treatment of animal and industrial wastes; techniques for collection, transport, storage, and utilization of animal wastes. Lecture 2 hours and laboratory 3 hours. Prerequisite: 544 or consent of instructor. Fall, Spring.

560 Small Internal Combustion Engines (3) Theory, concepts and mechanics of small internal combustion engines; engine design; combustion, operation, regulation; engine testing and repair. Prerequisite: 125 or consent of instructor. Fall, Spring.

662 Agricultural Chemical Application Technology (2) Equipment for application of solid, liquid, and gaseous agricultural chemical systems; proper application; safety; and management of equipment. Laboratory 2 hours and lecture 1 hour. Prerequisite: 560.

BOTANY (198)

110-120 General Botany (4) 110 - Introduction to plants; structure and organization of cells and function of cells, replication, photosynthesis, and respiration. 120 - Further study of plant kingdom (algae, bacteria, fungi, mosses, liverworts, ferns, gymnosperms, and flowering plants). Laboratory 1 hour. Prerequisite: 110 or consent of instructor. Fall, Spring.

301-302 Economic Impact of Plants (2) Significance of plants in origin and development of human culture, role of different cultivated plants, and role of plants in present civilization. Prerequisite: Fall.

306 Genetics and Society (3) Introduction to genetics; evolution of organisms and principles relevant to human and animal welfare. Lecture 3 hours. Prerequisite: 110 or consent of instructor. Fall, Spring.

321 Introductory Plant Physiology (4) Organismal physiology of plants; water relations, mineral nutrition, photosynthesis, respiration, growth and development, and reproduction. Lecture 4 hours. Prerequisite: 110 or consent of instructor. Fall.

330 Field Botany (3) Principles of taxonomy, basic ecological concepts and the identification, collection, preservation and study of plants. Lecture and laboratory 3 hours. Prerequisite: 110 or consent of instructor. Fall, Spring.

412 Advanced Botany (3) Laboratory 1 hour a week. Prerequisite: 321 or consent of instructor. Fall, Spring.

413 Introductory Plant Pathology (3) General classification of plants, characteristics, and control. Laboratory 3 hours. Lecture 3 hours. Prerequisite: 110 or consent of instructor. Fall, Spring.

414 Plant Evolution (3) Emphasizing of evolutionary aspects of different plant groups; studies in evolution and development of flowering plants, gymnosperms, and ferns. Laboratory 3 hours. Prerequisite: 110 or consent of instructor. Summer.

421 Introductory Plant Physiology (4) Organismal physiology of plants; water relations, mineral nutrition, photosynthesis, respiration, growth and development, and reproduction. Lecture 4 hours. Prerequisite: 110 or consent of instructor. Fall, Spring.

510 Plant Tissue Culture (3) Methods for the culture of plant tissue; biotechnological applications in horticulture; principles and practices in plant tissue culture. Lecture 3 hours. Prerequisites: 140 and 240 with grade of A or B and consent of instructor. Fall, Winter.

520 Radio-TV Advertising and Promotion (3) Study of various techniques and strategies used in radio and television advertising. Emphasis on writing persuasive messages—commercial, promotional, and public service. Laboratory 3 hours. Prerequisite: Consent of instructor. Fall.

521 Audio/Video Production (3) Emphasis on the application of electronic tools to develop effective audio and video production. Laboratory 3 hours. Prerequisite: Consent of instructor. Fall.

522 Radio-TV Sales (3) Problems and practices of radio, television and cable. Performance of case studies in newscasting. Laboratory 3 hours. Prerequisite: Consent of instructor. Fall.

523 Radio-TV Advertising and Promotion (3) Study of various techniques and strategies used in radio and television advertising. Emphasis on writing persuasive messages—commercial, promotional, and public service. Laboratory 3 hours. Prerequisite: Consent of instructor. Fall.

524 Undergraduate Research Participation (1-2,1-2) Experience in active research projects under the supervision of a research staff member. Prerequisite: Junior or senior standing, minimum grade average 3.0, consent of instructor. May be repeated. Maximum 8 hours.

525 Plant Ecology (3) Interactions between individuals, species, communities and their environments. Circulation of energy and matter in ecosystems. Weekly field trips or laboratory periods, and at least two weekend field trips. Prerequisite: Consent of instructor. Fall, Spring.

526 Genetics and Society (3) Introduction to genetics; evolution of organisms and principles relevant to human and animal welfare. Lecture 3 hours. Prerequisite: 110 or consent of instructor. Fall, Spring.

527 Biology of Human Affairs (3) Basic biological principles involved in determination and preservation of an environment in which humans and their cultures may survive. Lecture 3 hours. Prerequisite: Consent of instructor. Fall, Spring.

539 Introduction to the Plant Sciences (3) Principles of classification and ecological problems in the plant kingdom; the history of biology; the relationship of plants to human life. Lecture 3 hours. Laboratory 3 hours. Prerequisite: Consent of instructor. Fall.

540 Plant Molecular Biology (4) Instruction to current research in plant molecular biology and to commonly used techniques and procedures. Laboratory 2 hours. Prerequisite: Consent of instructor. Fall, Winter.

550-699 Special Projects of materials in wood, metal, concrete, plastics and composites, design and performance of materials and components. 1-3 hours. May be repeated for credit. Maximum 45 hours.

560 Small Internal Combustion Engines (3) Theory, concepts and mechanics of small internal combustion engines; engine design; combustion, operation, regulation; engine testing and repair. Prerequisite: 125 or consent of instructor. Fall, Spring.

562 Agricultural Chemical Application Technology (2) Equipment for application of solid, liquid, and gaseous agricultural chemical systems; proper application; safety; and management of equipment. Laboratory 2 hours and lecture 1 hour. Prerequisite: 560.

580 Undergraduate Seminar (1) At least one hour is required. Lecture 5 hours. Prerequisite: Consent of instructor. Fall, Spring.

581 Field Botany (1,1,1) Independent study under guidance of instructor. Laboratory 1 hour a week. Prerequisite: Consent of instructor. Fall, Spring.

451 Field Studies in Botany (3) Lecture 2 hours. Prerequisite: 510 or consent of instructor. Fall, Spring.

452 Plant Tissue Culture (3) Methods for the culture of plant tissue; biotechnological applications in horticulture; principles and practices in plant tissue culture. Lecture 3 hours. Prerequisites: 140 and 240 with grade of A or B and consent of instructor. Fall, Winter.

453 Plant Ecology (3) Interactions between individuals, species, communities and their environments. Circulation of energy and matter in ecosystems. Weekly field trips or laboratory periods, and at least two weekend field trips. Prerequisite: Consent of instructor. Fall, Spring.

456 Genetics and Society (3) Introduction to genetics; evolution of organisms and principles relevant to human and animal welfare. Lecture 3 hours. Prerequisite: 110 or consent of instructor. Fall, Spring.

457 Spatial Problems in Biosystems Engineering (1-3-3) Selected topics in spatial problems and report of problems. May be repeated, not more than 9 hours.

470 Undergraduate Seminar (1) At least one hour is required. Lecture 5 hours. Prerequisite: Consent of instructor. Fall, Spring.

471 Field Botany (1,1,1) Independent study under guidance of instructor. Laboratory 1 hour a week. Prerequisite: Consent of instructor. Fall, Spring.

491 Professional Practice (4) Experiments with a variety of plant species to understand plant development, function and characteristics, and impact on crop yield and water quality. Lecture 4 hours. Prerequisite: Consent of instructor. Fall, Spring, Summer.

492 Field and Process Engineering Technology (3) Application of basic science and engineering principles to agriculture and food processes. Food handling, drying, extrusion, processes involved in mixing, and mixing equipment. Laboratory 3 hours. Prerequisite: Introduction to Biosystems and Bioprocessing Technology. Fall.

493 Agronomic Machine and Tractors (3) Farm machinery and equipment; fundamentals of agricultural machinery systems; tractor power ratings, engine and transmission systems; hydraulics, steering, and braking systems. Laboratory 3 hours. Prerequisite: Introduction to Biosystems and Bioprocessing Technology. Fall.

494 Agricultural Machine and Tractors (3) Farm machinery and equipment; fundamentals of agricultural machinery systems; tractor power ratings, engine and transmission systems; hydraulics, steering, and braking systems. Laboratory 3 hours. Prerequisite: Introduction to Biosystems and Bioprocessing Technology. Fall.

495 Advanced Agronomic Machine and Tractors (3) Farm machinery and equipment; fundamentals of agricultural machinery systems; tractor power ratings, engine and transmission systems; hydraulics, steering, and braking systems. Laboratory 3 hours. Prerequisite: Introduction to Biosystems and Bioprocessing Technology. Fall.

496 Agricultural Waste Management and Pollution Control (3) Management of livestock, pet and household waste; principles of animal and industrial wastes; techniques for collection, transport, storage, and utilization of animal wastes. Lecture 2 hours and laboratory 3 hours. Prerequisite: 494 or consent of instructor. Fall, Spring.
389 Organic Chemistry Laboratory (3) Experiments on topics discussed in 380-380C. Coreq: 360. One 3-hour lab.

400 Research in Chemistry (3) Open to seniors majoring with consent of instructor. May be repeated. Prereq: 380. May not be repeated.

405 Topics in the Development of Chemistry (3) Open to seniors majoring with consent of instructor. May be repeated. Prereq: 380. May not be repeated.

410 Studio Project (1) Open to seniors majoring with consent of instructor. May be repeated. Prereq: 380. May not be repeated.

421 Laboratory Project (1-15) Independent study under the direction of a faculty member. May be repeated. Prereq: 380. May not be repeated.

425 Laboratory Science (3) Independent study and project under the direction of a faculty member. May be repeated. Prereq: 380. May not be repeated.

426 Advanced Laboratory (1-15) Independent study and project under the direction of a faculty member. May be repeated. Prereq: 380. May not be repeated.

427 Independent Study (1-15) Independent study and project under the direction of a faculty member. May be repeated. Prereq: 380. May not be repeated.

428 Internship (1-15) Independent study and project under the direction of a faculty member. May be repeated. Prereq: 380. May not be repeated.

429 Independent Study in Chemistry (1-15) Independent study and project under the direction of a faculty member. May be repeated. Prereq: 380. May not be repeated.

430 Advanced Physical Chemistry (3) Thermodynamics and statistical thermodynamics. Ideal and real gases, van der Waals properties, crystal structure and solid state. Coreq: 468. May not be repeated.

431 Advanced Physical Chemistry (3) Topics from chemical dynamics, statistical thermodynamics, quantum mechanics of atoms and molecules, solid state and crystal structure. Coreq: 468. May not be repeated.

432 Introductory Physical Chemistry (3) Fundamental principles of the four major subfields of physical chemistry: thermodynamics, quantum mechanics, spectroscopy, and statistical mechanics. Coreq: 468. May not be repeated.

433 Introduction to Chemistry (3) Survey of topics in the field of chemistry. Open to all students. Coreq: 100 or 130 or 138. May not be repeated. Prereq: 100 or 130 or 138. May not be repeated.

434 Research in Chemistry (3) Open to seniors majoring with consent of instructor. May be repeated. Prereq: 380. May not be repeated.

435 Topics in the Development of Chemistry (3) Open to seniors majoring with consent of instructor. May be repeated. Prereq: 380. May not be repeated.

436 Laboratory Project (1-15) Independent study and project under the direction of a faculty member. May be repeated. Prereq: 380. May not be repeated.
204 Introduction to Family Life Programs (2) Community and school-based programs that focus on enhancing individual and family life. Includes observation.
205 Introduction to Family Life Programs (2) Community and school-based programs that focus on enhancing individual and family life. Includes observation.
210 Human Development (3) Conception through adulthood in various social/ecological contexts; interrelationships among physical, cognitive, emotional, social, cultural, and spiritual development. Includes observation.
213 Development in Middle Childhood and Adolescence (3) Development from conception through early adulthood with an emphasis on various aspects of developmental theory, empirical research, and conceptual framework included. Prerequisite: 210 and admission to the major or consent of instructor.
220 Marriage and Family: Roles and Relationships (3) Emotion, trust, the partner's role in intrapersonal development. Includes observation of various aspects of relationship among young people, families and other professionals. Skills include active listening, self-disclosure, relationship-building, and families in various communities. Includes observation of various aspects of development, physical, cognitive, emotional, social, cultural, and spiritual development. Includes observation.
220 Marriage and Family: Roles and Relationships (3) Emotion, trust, the partner's role in intrapersonal development. Includes observation of various aspects of relationship among young people, families and other professionals. Skills include active listening, self-disclosure, relationship-building, and families in various communities. Includes observation of various aspects of development, physical, cognitive, emotional, social, cultural, and spiritual development. Includes observation.
222 Family Life in Middle & Late Adulthood (3) Adult life in society from youth through early adulthood and family structure. Includes observation of various aspects of development, physical, cognitive, emotional, social, cultural, and spiritual development. Includes observation.
230 Parent Education (3) Factors in contemporary American family life. Includes observation of various aspects of development, physical, cognitive, emotional, social, cultural, and spiritual development. Includes observation.
232 Archaeology and Art of Ancient Greece (3) Focuses on the classical period (ca. 3000-100 B.C.). For prehistoric emphasis on the Roman period (ca. 300-300 B.C.). Includes observation.
233 American Film (3) (Same as Film 110) Film as a cultural and commercial product. Includes observation.
235 American Film (3) (Same as Film 110) Film as a cultural and commercial product. Includes observation.
236 Introduction to Video Art (3) (Same as Art 236) Focuses on the development of video art. Includes observation.
238 Marriage and Family: Roles and Relationships (3) Emotion, trust, the partner's role in intrapersonal development. Includes observation of various aspects of relationship among young people, families and other professionals. Skills include active listening, self-disclosure, relationship-building, and families in various communities. Includes observation of various aspects of development, physical, cognitive, emotional, social, cultural, and spiritual development. Includes observation.
240 Family Stress (3) Family's response to actual circumstances: skills for intervention into family system: violence, abuse, divorce, illness, death, fertility. Prerequisite: 200 and consent of instructor.
245 Development of Interpersonal Skills (3) Development of interpersonal skills needed to work with families and other professionals. Includes active listening, self-disclosure, relationship-building, and families in various communities. Includes observation of various aspects of development, physical, cognitive, emotional, social, cultural, and spiritual development. Includes observation.
247 Students' Speech (3) Theory and analysis of oral communication. Includes observation of various aspects of development, physical, cognitive, emotional, social, cultural, and spiritual development. Includes observation.
250 Early Childhood Education I: Environments for Children (4) Classroom management, behavior guidance of groups of infants, toddlers, or preschoolers; under the direction of classroom teacher and cooperating teacher. Includes observation of various aspects of development, physical, cognitive, emotional, social, cultural, and spiritual development. Includes observation.
251 Early Childhood Education Specializations (4) See Specializations catalog. Includes observation of various aspects of development, physical, cognitive, emotional, social, cultural, and spiritual development. Includes observation.
257 Research in Child and Family Studies (3) Issues and popular culture. Includes observation of various aspects of development, physical, cognitive, emotional, social, cultural, and spiritual development. Includes observation.
260 Directed Study in Child and Family Studies (3-6) Individual learning experience assigned by the instructor. May be repeated. May be repeated. May be repeated.
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<tr>
<th>COURSES OF INSTRUCTION</th>
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<tbody>
<tr>
<td>301 Introduction to Comparative Literature (3) Basic knowledge, techniques, and sources necessary to original research on works of fiction, drama, and poetry. May be repeated. Maximum 9 hours.</td>
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<tr>
<td>340 Foundations of Software Engineering (3) Principles of program design and verification, formal language paradigms (procedural, functional, object-oriented), language design and implementation issues, theoretical computer science, and the Internet.</td>
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<tr>
<td>398 Honors: College Scholars Studies (2-12) Designed for College Scholars working on their senior research project. May be repeated. Maximum 12 hours.</td>
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<tr>
<td>400 Mass Communications Law and Ethics (3) Emphasis on legal aspects of media law and its effect on governmental regulations. Also includes ethical standards and issues related to parallelism. Prereq: Senior standing. Writing emphasis course.</td>
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<tr>
<td>412 Senior Thesis II (3) Continuation of 411. Writing emphasis course.</td>
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<tr>
<td>413 Introduction to Scientific Computing (3) The design, analysis, and implementation of numerical algorithms. Emphasis on optimization, numerical algorithms, system engineering, and the Internet. Prereq: Senior standing. Writing emphasis course.</td>
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<tr>
<td>439 Thesis (1-12)</td>
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<td>440 Special Topics In Computer Science (1-3)</td>
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<tr>
<td>451 Microcomputer Networks and Communication Systems (3) Advanced network and communication systems topics. Prereq: Completion of core curriculum.</td>
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<tr>
<td>461 Advanced Topics in Software Systems (3) Topicssuch as search, learning, expert systems, neural networks, and logic, language design and implementation issues, theoretical computer science, and the Internet. May be repeated.</td>
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<tr>
<td>462 Theory of Computation (3) Recursive functions, Turing machines, computability, halting problems, Gödel incompleteness, computability, and the Internet. Prereq. 111 and 112 or 213.</td>
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<tr>
<td>482 Off-Campus Study (1-15)</td>
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<td>491 Foreign Study (1-15)</td>
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<tr>
<td>492 Off-Campus Study (1-15)</td>
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COUNSELOR EDUCATION AND PSYCHOLOGICAL (257)

208 Student Development (3) Exploration in acquiring knowledge and skill in areas such as interpersonal relations, academic development, personal development, communication, and self-awareness. Individuals must complete a major in counseling. May be repeated. Maximum 15 hours. E

210 Career and Personal Development (2) Systematic study of personal development and life planning. May be repeated. Maximum 5 hours. F, S

215 Learning and Study Skills (3) Approaches to improving academic performance through study skills, learning style matching and understanding of learning style. May be repeated. Maximum 4 hours.

401 Special Topics (1-3) Instructor Initiated offered at convenience of the department on various topics of current interest. Open to majors and minors or with consent of instructor. May be repeated. Maximum 15 hours. E

410 Sea Rasin Development (5) Impact of social skill and thinking in areas such as interpersonal relations, academic development, personal development, communication, and self-awareness. Individuals must complete a major in counseling. May be repeated. Maximum 15 hours. E

411 Personality and Mental Health (5) Perspective of mental health with awareness to education and other vocations. May be repeated. Maximum 15 credits. E

416 Independent Study (1-3) Independent investigation in area of dance. May be repeated. Maximum 9 hours. E

CULTURAL STUDIES IN EDUCATION (271)

240 Human Motor Behavior (3) Theories and principles exploring motor behavior. Psychological factors related to and affecting motor skill acquisition and performance. Prerequisites: At least sophomore standing. 891 Sport in American Society (3) For all university undergraduates on the campus of sport in American society from a sociological perspective. (Same as Sociology 201. F

300 School-Athlete Development (3) Experiential and social perspectives of contemporary social change. Emphasis on social change in Western culture. Focus on growth for enjoyment of sport in education. Focus on sport in American society and its role in American society from a sociological perspective. (Same as Sociology 201. F

321 History of Sport and Physical Activity in Western Culture (3) Study of sport and physical activity in historical, sociocultural, and psychological contexts in Western culture. Focus on Western culture. Focus on sport and physical activity in Western culture. Focus on growth for enjoyment of sport in education. Focus on sport in American society and its role in American society from a sociological perspective. (Same as Sociology 201. F

298 Special Topics in Computer Science (2) Topics such as theory of computation, complexity theory, automata theory, formal languages, and applications. Emphasis on faculty research. May be repeated. Maximum 6 hours. E

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

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

470 Advanced Topics in Theoretical Computer Science (5) Topics such as theory of computation, complexity theory, automata theory, formal languages, and applications. Emphasis on faculty research. May be repeated. Maximum 18 hours. E

473 Numerical Analysis (3) (Same as Mathematics 473)

480 Special Topics in Theoretical Computer Science (1-3) Special project in area of student's primary interest. Directed by Computer Science faculty. Prerequisites: Open to students with consent of instructor. May be repeated. Maximum 6 hours. E

AND COUNSELOR EDUCATION

DANCE (274)

210 Practicum: Performance (1-2) Preparation and presentation of university dance company. May be repeated. Maximum 4 hours.

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

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

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

240 Human Anatomy (3) Gross and microscopic human anatomy. Prerequisites: Consent of instructor. May be repeated. Maximum 12 hours.

300 School-Athlete Development (3) Experiential and social perspectives of contemporary social change. Emphasis on social change in Western culture. Focus on growth for enjoyment of sport in education. Focus on sport in American society and its role in American society from a sociological perspective. (Same as Sociology 201. F

321 History of Sport and Physical Activity in Western Culture (3) Study of sport and physical activity in historical, sociocultural, and psychological contexts in Western culture. Focus on Western culture. Focus on sport and physical activity in Western culture. Focus on growth for enjoyment of sport in education. Focus on sport in American society and its role in American society from a sociological perspective. (Same as Sociology 201. F
403 Plant Evolution (2) (Same as Botany 403.)
407 Seniors Honors Thesis (2) Written preparation and completion of senior thesis under guidance of instructor. Prerequisite: Admission to honors program in EEB and EEB 440 or equivalent.
411-412 Minicourse in Ecology and Evolutionary Biology (2) Selected advanced topics in ecology, evolution, and population biology, concentrated in free and subject matter. Consent of instructor required. May be repeated with approval of instructor. 1 hour of credit may be applied toward the departmental major.
413 Plant Ecology (3) (Same as Botany 413.)
414 Introduction to Oceanography (4) Basic oceanography, including physical, chemical, geological, and biological processes at the interface of the ocean and atmosphere. Emphasis on current problems in the field, with a focus on the ocean as a dynamic and complex system. Prerequisite: Biology 230 or consent of instructor.
415-416 Aquatic Ecology (3) Basic oceanography, including physical, chemical, geological, and biological processes at the interface of the ocean and atmosphere. Emphasis on current problems in the field, with a focus on the ocean as a dynamic and complex system. Prerequisite: Biology 230 or consent of instructor.
424 Political Economy of World Development (3) Topics vary. Latin America, Asia, Soviet Union and Eastern Europe. Analysis of major economic strategies, policies, and problems. Major writing requirement. Prerequisite: Senior standing. May be repeated when topic varies. Maximum 9 hours.
424 Political Economy of World Development (3) Topics vary. Latin America, Asia, Soviet Union and Eastern Europe. Analysis of major economic strategies, policies, and problems. Major writing requirement. Prerequisite: Senior standing. May be repeated when topic varies. Maximum 9 hours.
425 Economic Development (Third World) (3) Overview of the international economic issues facing developing countries and other emerging markets. Theoretical and empirical analysis of the role of trade, aid, and foreign investment in economic development. Prerequisite: 201. Writing-emphasis course.
425 Economic Development (Third World) (3) Overview of the international economic issues facing developing countries and other emerging markets. Theoretical and empirical analysis of the role of trade, aid, and foreign investment in economic development. Prerequisite: 201. Writing-emphasis course.
426 Special Topics (3) Topics vary. Prerequisite: permission of instructor. May be repeated when topic varies. Maximum 9 hours.
427 Macroeconomic Fluctuations (3) Analysis of historical data, methods of analyzing macroeconomic fluctuations, theoretical foundations of analysis, and the role of monetary policy and fiscal policy in the aggregate economy. Prerequisite: 313 or consent of instructor. Writing-emphasis course.
428 Macroeconomic Fluctuations (3) Analysis of historical data, methods of analyzing macroeconomic fluctuations, theoretical foundations of analysis, and the role of monetary policy and fiscal policy in the aggregate economy. Prerequisite: 313 or consent of instructor. Writing-emphasis course.
429 Western Economic Thought Since the 18th Century (3) Methods of studying classical, neoclassical, and recent economic thought. Emphasis on Keynes and his followers, principal works of second half of 20th century. Prerequisite: 313 or consent of instructor. Not available for graduate credit. Prerequisite: consent of instructor. Not available for graduate credit. Prerequisite: consent of instructor. Not available for graduate credit.
431 Plant Ecology (3) (Same as Botany 431.)
432 Plant Ecology (4) (Same as Botany 432.)
433 Total Economic Cost (2) Analysis of the economic cost of disease, the role of government, and the role of monetary and fiscal policies in the aggregate economy. Prerequisite: 313 or consent of instructor. Writing-emphasis course.
332. Sp flow with shocks, friction and nonadiabatic conditions.

351 Compressible Flow (3) One-dimensional internal elements. Coreq: ME 363. Prereq: ES 341, EE 301. F, Sp

345 Aerospace Engineering Instrumentation and Controls. Lab. Prereq: EE 301, Math 241. F

496 Teaching Science Grades 7-12 (3) Methods, mathematics, teaching, conducting, and reporting results of experimental investigations. Prereq: Senior standing. F

495 Selected Topics in Aerospace Science (1-4) Current problems and topics in aerospace science; Prereq: Consent of instructor. S/NC or letter grade. F, Sp

ENGINEERING CHEMICAL (226)


240 Fluid Flow and Heat Transfer (2) Force, energy and mechanical energy balances; flow in tubes, piping systems, packed and fluidized beds; pumping and mixing; stability and unstably, heat and mass transfer; heat transfer in solids and heat exchangers. Prereq: Math 321, Coreq: Thermodynamics 231. F

251 Chemical Engineering Data Analysis (3) Analysis of data; identification of system variables; statistical properties of samples; empirical modeling of processes; statistical process control; optimization techniques. Prereq: Math 206. F

310 Chemical Engineering Laboratory (3) Thermodynamics, fluid flow and heat transfer in chemical engineering. Prereq: 240. Coreq: Chem 473. F

330 Chemical Engineering Thermodynamics (3) Basic concepts and chemical engineering applications of thermal processes. Analysis of equilibrium temperatures of gases, liquids, and solutions from temperature and pressure data. Prereq: Math 321, Chem 130. F

339 Chemical Engineering Design (4) Introduction to problem modelling and industrial control system design. Includes design of fluid system, control of production processes, selection of instrumentation, and design and control of chemical processes. Prereq: Chem 130. F

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

408 (1) Presentations and discussions on topics of interest. Prereq: Consent of instructor. Prereq: 407 or 409. F

409 Introduction to Aerospace Design (3) Design and analysis of propulsion devices, prediction of airplane performance, and mechanical and electrical systems. Prereq: Math 206, Coreq: Elect. 344. F


430 Mechanical Engineering/Aerospace Engineering Senior Seminar (1) Topics related to engineering, ethics. Formal or informal presentations by students on engineering topics or professional theses. Prereq: Senior standing. F


469 Interpretive Reports (1) Interpretive written and oral presentations. Prereq: 422 or ME 344 or consent of instructor. F

492 Aerospace Engineering Laboratory (2) Designing, constructing, and evaluating aerospace structures. Test standards and specifications. Analysis and presentation of failure. Three hour lab per week. Prereq: Math 351, 361. F

515 Introduction to Aerospace Graphics (3) Introduction to the graphical representation of aerospace science. Prereq: Consent of instructor. Coreq: in other grade, F.

ENGINEERING BASIC (179)

169 Coreq: CHEM 130. Computer Programming as a profession; engineering ethics. Communication, oral and written and the various engineering disciplines. Satisfactory/No credit. F


362 Dynamics/Vibrations (3) Central force motion; inversion, retrograde and confocal vibrations of single and multiple degree vibratory systems. Prereq: ES 321. F


381 Thermal (2) Problem investigation and report. Prereq: Senior standing. F, Sp

420 Aerodynamics (3) Theory and design of aerodynamic bodies for aircraft. Potential flow, theory, thin airfoil, compressibility effects. Subsonic, transonic, and supersonic effects. Prereq: Math 350. F

421 Viscous Flow (4) Boundary layer flow, laminar and turbulent flow, compressibility effects, numerical solution methods. Prereq: 420 or ME 344 of consent of instructor. Sp

422 Refrigeration (3) Propulsion, refrigeration, heat transfer, and environmental control systems. Prereq: Math 350. F

423 Viscous Flow (3) Boundary layer theory; laminar and turbulent flow, compressibility effects, numerical solution methods. Prereq: 420 or ME 344 or consent of instructor. Sp

424 Astronautics (3) Propulsion, guidance, navigation and control of space vehicles. Prereq: Math 330, 363, Sp

424 Astronautics (3) Propulsion, guidance, navigation and control of space vehicles. Prereq: Math 330, 363, Sp


430 Mechanical Engineering/Aerospace Engineering Senior Seminar (1) Topics related to engineering, ethics. Formal or informal presentations by students on engineering topics or professional theses. Prereq: Senior standing. F


469 Interpretive Reports (1) Interpretive written and oral presentations. Prereq: 422 or ME 344 or consent of instructor. F

492 Aerospace Engineering Laboratory (2) Designing, constructing, and evaluating aerospace structures. Test standards and specifications. Analysis and presentation of failure. Three hour lab per week. Prereq: Math 351, 361. F

515 Introduction to Aerospace Graphics (3) Introduction to the graphical representation of aerospace science. Prereq: Consent of instructor. Coreq: in other grade, F.
425 Introduction to Chemical Engineering Process Economics (3) Conventional and new methods of cost accounting, cost and equity financing, discounted cash flow methods, and taxation of production and manufacturing processes. Basic cost and overhead study and the use of computer methods for process design and analysis. Prerequisite: Calculus. 3 hours lecture, 1 hour lab. Prereq: 330 or consent of instructor.

440 Civil Engineering Systems Design and Management (3) Techniques of systems analysis and design for civil engineering systems to enhance resource allocation for specific applications in transportation, environmental, water resources, structural analysis, and civil engineering systems. Prereq: Senior standing and 251. 3 hours lecture. Prereq: 235, 251, 351.

451 Highway Engineering (3) Design, construction, and maintenance of highways, including materials, construction procedures, and control, safety analysis and design. 3 hours lecture. Prereq: 270, 281, 282.

454 Soil Water Resources Project Design (3) Development of multipurpose reservoir and dam projects, including evaluation of potential sites, feasibility studies, design of hydraulic structures, and environmental impact studies. Prereq: 210, 251, 352. 4 hours lecture, 1 hour lab. Prereq: Senior standing.

461 Analysis of Flamed Structures (3) Maximum stresses due to moving loads, loads of influence lines, and failure modes of reinforced concrete beams; use of standard specifications. Prereq: 390 or Chemical Engineering 200 or Agricultural Engineering 243.


465 Water and Waste Transport (3) Theory and design of water and waste systems and their relationship to urban planning and drainage, city planning and transportation. Prereq: 392. 3 hours lecture. Prereq: 210, 351.

470 Hydrology (4) Basic laws and properties of incompressible fluids. Velocity and acceleration; momentum, energy, and mass conservation principles; sediment transport; computer analysis of flow in natural and man-made channels. Prereq: 392. 3 hours lecture, 1 hour lab. Prereq: 210, 351.

471 Basic Engineering Economics (3) Basic Engineering Economics. 3 hours lecture. Prereq: Senior standing.

472 Steel Design (3) Design of plain and composite beams and columns. Use of computer programs for structural analysis and design. Prereq: 392. 3 hours lecture. Prereq: 210, 251, 352.

474 Reinforced Concrete Design (3) Reinforced concrete elements: design and analysis of beams, columns, and slabs. Use of computer programs for structural analysis and design. Prereq: 210, 251, 352. 3 hours lecture, 1 hour lab. Prereq: 210, 251, 352.

475 Hydrocarbon Processing (3) Chemical and physical properties of selected petroleum fractions and processes utilized in conversion of raw material to various fuels and selected chemical feedstocks. Prereq: 340, Chemical Engineering 350. 3 hours lecture. Prereq: Upper division standing in engineering.

476 Environmental Protection (3) Applied and sanitary engineering principles in relation to the control of environmental pollution. Prereq: 477 and consent of instructor. 3 hours lecture. Prereq: 477 and consent of instructor.

478 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 strategies, networking and communication, human-machine interfaces, and project management. Prereq: 261 and consent of instructor. 3 hours lecture, 1 lab. Prereq: Consent of instructor. 3 hours lecture, 1 lab. Prereq: Consent of instructor.

480 Equipment Design and Economic Analysis (6) Design evaluation of heat exchangers, pumps, distillation columns, and separation processes, and economic evaluation of various process configurations, equipment, and operating parameters. Prereq: 261. 4 hours lecture, 2 labs. 3 hours lecture, 2 labs. Prereq: 261. 3 hours lecture, 2 labs. Prereq: 261.

484 Special Problems in Chemical Engineering (1-3) Open to senior and graduate students in chemical engineering. Prerequisites depend upon individual projects. 1-3 hours. Prereq: Consent of instructor. May be repeated for credit. 1-3 hours. Prereq: Consent of instructor. May be repeated for credit. 1-3 hours. Prereq: Consent of instructor. May be repeated for credit.

490 Water Resources Project Design (3) Development of multipurpose reservoir and dam projects, including evaluation of potential sites, feasibility studies, design of hydraulic structures, and environmental impact studies. Prereq: 210, 251, 352. 4 hours lecture, 1 hour lab. Prereq: Senior standing.

491 Tropical Engineering (3) Introduction to Tropical Engineering. 3 hours lecture. Prereq: Consent of instructor.

492 Interfacing Flexible Batch/Continuous Processes and Plants to a Distributed Manufacturing System (3) Introduction to interfacing flexible batch/continuous processes and plants to a distributed manufacturing system. Prereq: Concurrent enrollment in Concurrent Engineering 251. 3 hours lecture, 1 lab. Prereq: Consent of instructor. 3 hours lecture, 1 lab. Prereq: Consent of instructor. 3 hours lecture, 1 lab. Prereq: Consent of instructor.


495 Water and Waste Management (3) Principles of domestic wastewater treatment and reuse, including design, operation, maintenance, control, and integration into larger water systems. Prereq: 392, 395. 3 hours lecture. Prereq: 392, 395.

496 Transportation Engineering (3) The theory and design of roadways and vehicular traffic systems, including safety, transportation engineering, and traffic management. Prereq: 210, 352. 3 hours lecture. Prereq: 210, 352. 3 hours lecture. Prereq: 210, 352. 3 hours lecture. Prereq: 210, 352.
Among water resource development activities, multi-
objective planning, principles of engineering assump-
tions, benefit-cost analysis, and cost-benefit methods;
environmental impact assessment procedures; action
using risk-based methods; case studies. PreReq: Senior standing.

**ENGINEERING ELECTRICAL (31) Courses of Instruction**

301 Circuits I (3) Fundamental laws of circuit analysis. Ohm's Law, Kirchhoff's Voltage and Current Laws; superposition; node and branch analysis; energy conservation; steady state and transient phenomena; determination of amplitudes and phasor diagrams; application of superposition; introduction to sinusoidal steady state analysis. Includes Level I design projects which require laboratory work. PreReq: 201, 205.

302 Circuits II (3) Operational amplifiers, average and rms, large and small signal analysis, feedback control, resistive dividers. Circuit analysis using computer programs. Includes Level I design projects which require laboratory work. PreReq: 201, 205, MATLAB 201.

303 Circuits and Electromagnetic Components (3) DC and AC Circuits, Transistors, Ohm's Law, Kirchhoff's Voltage and Current Laws; circuit analysis using MATLAB programs. Includes Level I design projects which require laboratory work. PreReq: 201, 205, MATLAB 201.

304 Electronics and Computer Circuits (3) Analog Circuit Analysis; operational amplifiers; MOS and CMOS digital circuits; microprocessors and microcontrollers. PreReq: PreReq: 201, 205, MATLAB 201.


312 Linear Control System Design (3) Classical and modern techniques for design and compensation of linear feedback control systems. Includes block diagram notation, root locus design, state variable space design. PreReq: 311, 332, 421.

313 Electric Energy Systems I (3) Structure and operation of the electrical utility system; basic components; economic and environmental aspects; demand response and energy management. PreReq: 311, 321, 332.

314 Electronic Amplifiers and Oscillators (4) Feedback power amplifier principles; push-pull and single-ended amplifiers; power transistor design. PreReq: 311, 321, 332.


316 Electronic Devices (3) Fundamentals of energy conversion; circuits, solid-state devices, field effect trans-

317 Electrical Machines and Power Electronics (3) Current and voltage source inverters; converter topologies; control of power electronic systems; design and performance evaluation. PreReq: 311, 321, 332.

318 Electrical Machines (3) Three-phase windings and field significance; induction and synchronous machines; commutator machines; design principles; magnetic circuit analysis; finite-element methods. PreReq: 311, 321, 332.

319 Solid State Devices (3) Solid state devices; transistors, diodes, field effect trans-


332 Power Electronics (3) Switching power supplies; inverter design and operation; power conversion efficiency. PreReq: 311, 321, 332.

333 Power Engineering (3) Energy conversion; nuclear, fossil and renewable energy production; environmental and economic impacts. PreReq: 311, 321, 332.


335 Power System Protection (3) Protective relay systems; power system protection principles. PreReq: 311, 321, 332.


340 Power System Protection (3) Protective relay systems; power system protection principles. PreReq: 311, 321, 332.


342 Power System Protection (3) Protective relay systems; power system protection principles. PreReq: 311, 321, 332.


345 Power System Protection (3) Protective relay systems; power system protection principles. PreReq: 311, 321, 332.

ENGINEERING INDUSTRIAL (556)

201 Introduction to Industrial Engineering (1) An introduction to industrial engineering as a problem solving tool, with an emphasis on the nature of work, the scientific method, and problem-solving techniques. Course includes safety, health, and human factors. Prerequisites: 100, 101. Coreq: 202.

301 Operations Research (3) Introduction to mathematical modeling, computer simulation, and statistical methods. Emphasis on applications and case studies. Prerequisites: Level 1 course in computer programming, Linear Algebra, and Statistics 251 or consent of instructor.

401 Integrated Manufacturing Systems (3) AP and CNC machine tools, robots and micromachining processes; material properties and capabilities. Includes Level 2 design projects which require laboratory work. Prerequisite: 400.

402 Power Machinery Engineering (3) Theory and analysis of rotating machinery, engines, and other industrial systems. Prerequisite: 400.

403 Production Facilities Design and Material Handling (3) Design of production facilities including plant layout and system analysis. Prerequisite: 400.

404 Industrial Engineering Applications (1) To enhance the student's understanding of the applications of industrial engineering to real-world problems. Prerequisite: 300, 306, or Statistics 251.

414 Laboratory and Methodology in Human Factors Engineering (3) Design of experiments for human factors research. Prerequisite: 300, 306, or Statistics 251.

421 Information Systems Analysis and Design (3) Introduction to the design of information systems for business and industrial applications. Prerequisite: 300, 306, or Statistics 251.

422 Senior Industrial Engineering Problems Analysis and Investigation (3) Analysis and investigation of problems in the design and operation of industrial systems. Prerequisite: 300, 306, or Statistics 251.


440 Special Topics (3) Special Topics in Industrial Engineering (3) Special topics in various areas of industrial engineering. Prerequisite: 300, 306, or Statistics 251.

471 Introduction to Pattern Recognition (3) Design of learning and adaptive automatic systems for pattern recognition problems. Prerequisite: 200. Coreq: 202 or consent of instructor.

490 Special Topics (3) Topics relating to recent developments and current practice. May not be used to satisfy senior 12 cr. requirements for graduation. Prerequisites: Senior standing.

491 Special Topics (3) Topics relating to basic design and current research. May not be repeated to satisfy senior 12 cr. requirements. Prerequisite: 300, 306, or Statistics 251.

495 Senior Seminar (1) Current topics in electrical engineering, including circuit design, computer design, and computer animation. Utilization of statistical tools to enhance problem-solving skills for future professional positions. Prerequisite: 300, 306, or Statistics 251.

496 Senior Thesis (1) Thesis on a subject of interest to student and advisor. May be repeated once. Prerequisite: Senior Standing and consent of instructor.

ENGINEERING MATERIALS SCIENCE (638)

201 Introduction to Materials Science and Engineering (3) Constituents of structure at atomic level; single crystal and polycrystalline materials; sources of material property data, utilization of material databases. Major categories include metals, ceramics, and polymers. Prerequisite: 200.

303 Thermodynamics of Solids (3) Application of the laws of thermodynamics to single crystal and polycrystalline solids, including friction, thermal expansion, phase diagrams, solid-state reactions. Prerequisites: 201, 202.

304 Principles of Ceramic Materials (3) Synthesis and processing; microstructure and properties; anisotropy and texture. Prerequisites: 300, 306, or Statistics 251.


322 Principles of Metallic Materials (3) Selection of material properties, design of microstructure and mechanical properties, and microstructure of solid materials. Prerequisites: 300, 306, or Statistics 251.

329 Principles of Polymers (3) Selection of material properties, design of microstructure and mechanical properties, and microstructure of solid materials. Prerequisites: 300, 306, or Statistics 251.
Courses of Instruction

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industrial design, aesthetics, economics, regulations, tools for changes. Prereq: Senior standing.

401 Diffusion and Phase Transformations (2) Diffu-
sion and phase transformation reactions, ordering of materials and phases, analysis of phase equilibria. Prereq: 201, 303.

402 Structural Characterization of Materials (4) X-ray diffraction, electron microscopy, neutron scattering, NMR spectroscopy, and other techniques. Prereq: Senior standing.

421 Mechanical Behavior of Materials II (3) Conduct of stress and strain, linear elastic constitutive equa-
tions, isotropic and anisotropic models in various mate-
rials; yield criteria; brittle fracture; crazing; plastic strain constitutive equations; forming operations and limit ont-

435 Chemical Process Reaction Engineering (6) Kinetics of chemical thermodynamics to model-pool processes; Frenkel and non-Frenkel models; catalytic cracking, regen-


444 Plastics Fabrication and Design (3) Lecture, laboratory, demonstrations. Introduction to plastics fabrication, plastic classfification, design and selection criteria. Prereq: 204.

451 Systems and Controls (3) Analytical models of physical systems; comprised of combinations of me-
chanical, electrical, and thermal elements. Application of model formulation, transient and frequency response, design of control system with computer simulation. Prereq: EE 300, 340, 401.

454 Microcomputer-Based Control of Electrome-
chnical Devices (3) Introduction to microcomputers, digital processing, programming, microcontroller archi-

456 Introduction to Thermal Design (2) Engineering applications of therommettry, calorimetry, and thermodynamics. Prereq: ME 201, 202.

469 Machine Design (4) Design of complete machine; design of mechanical components, element and heat exchanger thermal design; steam generator design. Prereq: 305.


471 Refrigeration and Air Conditioning (3) Vapor compression and absorption systems, heat pump systems; thermodynamic processes; air washers; deicing; heating, ventilation, air conditioning. Prereq: 332, 344.

472 Fundamental Principles of Composite Materials (3) Physical principles basic to the design, manufacture, performance of fiber-reinforced polymers, metals and ceramics. Prereq: ME 301.

474 Biomaterials (3) Metals, polymers and ceramics, application in medicine, engineering, medical implants, dental implants, tissue engineering and science. Prereq: 302 or equivalent. (Same as Engi-
neering 414).


476 Microwave-Based Bioengineering (3) Engineering applications of microwave systems to biological systems. Application of model formulation, transient and frequency response. Prereq: EE 201 or EE 301 and computer programming.

481 Biotechnology (3) Metals, polymers and ceramics, application in medicine, engineering, medical implants, dental implants, tissue engineering and science. Prereq: 302 or equivalent. (Same as Engi-
neering 414).

484 Nuclear and Radiological Engineering Laboratory 1 (3) Radiation detection and counting instrumentation. Prereq: 301. Coreq: NE 203 or ME 331.

485 Nuclear and Radiological Engineering Laboratory 2 (3) Radiation detection, health physics, cross sections, flux, neutron, reactor theory. Prereq: Physics 301, Math 201.

494-495 Selected Topics in Materials Science and Engi-
neering 1-(1-4) Course may cover developments and new developments in materials science and engineering. Prereq: senior standing or consent of instructor.

495 Machine Design Fundamentals and Applications (4) Design of complete machine; design of mechanical components, element and heat exchanger thermal design; steam generator design. Prereq: 305.


498 Machine Design (6) Design of complete machine; documentation including complete specifications, de-

499 Machine Design Laboratory 1 (4) Laboratory in full-scale design and construction of experimentally con-
duction. Prereq: 495.

498 Senior Honors Paper (3) Second semester of research and writing project under the direction of an academic advisor. Requires proposal in second semester. Maximum 6 hours. (Same as Cinema Studies 489.)

496 The Rhetoric of Legal Discourse (3) Applying principles of persuasive writing to legal materials. Writing position papers, briefs, and memoranda, students are required to incorporate legal materials. Emphasis on large-scale units: tribes, nations, social groups. Prerequisite: 371 or 372 and consent of instructor. (Same as Linguistics 495.)

495 Introduction to Rhetoric and Composition (3) Introduction to the historical, theoretical, and empirical models of rhetoric in composition and rhetoric/compensation for the teaching of composition. Prerequisite: 372 and consent of instructor. (Same as Linguistics 495.)

494 Special Topics in Language (3) May be repeated with consent of the instructor. Maximum 6 hours. (Same as Linguistics 490.)

490 Language and Law (3) Language in the Anglo-American legal process: focus on differences between spoken and written language; law and legal-sounding language; legal writing and oral presentation; legal linguistics. Prerequisite: 371 or 372 and consent of instructor. (Same as Cinema Studies 489.)

485 Special Topics in Writing (3) Original writing and public presentation of position papers, briefs, and memos. May be repeated with consent of the instructor. Maximum 6 hours. (Same as Linguistics 490.)

484 Special Topics in Writing (3) Original writing and public presentation of position papers, briefs, and memos. May be repeated. Maximum 6 hours. (Same as Linguistics 490.)

483 Special Topics in Language (3) May be repeated with consent of the instructor. Maximum 6 hours. (Same as Linguistics 490.)

482 Exercise Science Practicum (4) Supervised experience in exercise science/fitness areas. May be repeated for a total of 6 credits. Prerequisite: Exercise Science major or consent of instructor.

481 Exercise Physiology/Fitness Internship (1-15) Full-time internship in exercise/fitness/health field approved by the advisor. Satisfactory/No Credit grading only. Prerequisites: 442 and 483, and consent of instructor.

480 Directed Independent Studies (1-3) Independent study in a specialized area with academic advisor. Satisfactory/No Credit grading only. Prerequisite: Exercise Science major or consent of instructor.
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423 French Cinema (3) The French cinema from its earliest days through the New Wave directors. Prereq: 300 level literature course. Can be applied to major. Writing-emphasis course. Prereq: French 334 or 345. 1 hour lecture and 2 hours lab per week.

422 Advanced Grammar (3) Improving one's written and oral communication skills. Emphasis on grammar, sentence structure, and oral communication. Prereq: French 334 or 345. 2 hours lecture and 2 hours lab per week.

421 Phonetics (3) Foundation in the science of phonetics. Practice exercises and oral presentations. Prereq: French 333 or equivalent. Graduate credit is not offered to students majoring in the Department of Romance Languages. Writing-emphasis course. Prereq: French 333 or equivalent. 1 hour lecture and 3 hours lab per week.

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.)

419 Historical Geography of the United States (3) Geographical appraisal of the United States and Canada as they interrelate to and give distinctive character to regions of North America. Writing-emphasis course.

1. Regional Analysis of the World (4) Geographical analysis of the world's major physical, cultural, and economic regions. Includes an examination of the major world regions in terms of their physical, cultural, and economic characteristics. Prereq: 101-102 or 340 or consent of instructor. Writing-emphasis course. (Same as Urban Studies 130.)

2. Economic Foundations of World Geography (3) Geographical patterns and processes of economic development. Prereq: 101-102 or 340 or consent of instructor.

3. Historical Foundations of World Geography (3) Historical and contemporary patterns of human settlement and interaction. Prereq: 101-102 or 340 or consent of instructor. Writing-emphasis course.

4. Theoretical Foundations of World Geography (3) Geographical patterns of human settlement and interaction. Prereq: 101-102 or 340 or consent of instructor. Writing-emphasis course.

5. Variations in World Geography (3) Variations in world geography as they relate to climate, vegetation, and human settlement. Prereq: 101-102 or 340 or consent of instructor. Writing-emphasis course.

6. Special Topics in World Geography (3) Special topics in world geography. Prereq: 101-102 or 340 or consent of instructor. Writing-emphasis course.

7. Special Topics in Geography (3) Special topics in geography. Prereq: 101-102 or 340 or consent of instructor. Writing-emphasis course.

231 Intermediate Readings in Greek (3) Content varies. Prereq: Classics 261. Students or student groups are expected to work on an independent research project. Open to graduate students preparing for language examination, and upper-division students with consent of instructor. May be repeated for credit. Maximum six hours.

231-122 Beginning Greek (3) Must be taken in sequence. Prereq: Classics 260. Theory and practice of Greek language study. Communicating in Greek. Prerequisite: Consent of Instructor. May be repeated for credit. Maximum six hours.


241-242 Development of Western Civilization (3,3) Usually taken in final semester. Prereq: Progression and approval for internship. Satisfactory/No Credit only.

243 Advanced First Aid and Emergency Care (3) Intended for first aid and emergency care providers. Students will attend the appropriate 221-222 lectures and the designated honors section. Prereq: Consent of instructor. May be repeated for credit. Minimum twelve hours. E

244 Health Education, Promotion, and Behavior (3) Health education goals, roles, target populations in school, community and health settings; health education curricula, cross-cultural health behavior intervention techniques; health appraisal techniques; health promotion strategies; F

300 Health of Adolescents (3) Profiles of health needs, strengths, and behaviors of adolescents and attention to the risks and functions of peer groups related to youth and youth culture. F

301 Health Instruction in Elementary Grades (3) School health, principles of curriculum development, administration, implementation, personnel, management; school, community and health care settings; health education goals, roles, target populations in school, community and health settings; health education curricula, cross-cultural health behavior intervention techniques; health appraisal techniques; health promotion strategies; F

306 Health Instruction in Elementary Grades (3) School health, principles of curriculum development, administration, implementation, personnel, management; school, community and health care settings; health education goals, roles, target populations in school, community and health settings; health education curricula, cross-cultural health behavior intervention techniques; health appraisal techniques; health promotion strategies; F

307 Health Instruction in Secondary Grades (3) School health, principles of curriculum development, administration, implementation, personnel, management; school, community and health care settings; health education goals, roles, target populations in school, community and health settings; health education curricula, cross-cultural health behavior intervention techniques; health appraisal techniques; health promotion strategies; F

330 Suicide and Crisis Intervention (3) Factors which influence suicidal behavior, assessment and intervention techniques; health appraisal techniques; health promotion strategies; F

425 Substance Use and Abuse (3) Drug and alcohol problems related to health and wellness; strategies for intervention and prevention education. Sp

427 Special Topics of Interest (3) Special topics of interest (3) for advanced students. Prereq: Consent of instructor. May be repeated for credit. Maximum six hours.

430 Field Practice (3) On-campus health internship related to personal or professional development. Prerequisites vary by field. Satisfactory/No Credit only. Usually taken in final semester.

181 Courses of Instruction
The evolution of modern Germany through revolution, with the end of the older order in the Age of Napoleon.

A History of Austria and Central Europe: Frontier industrialization and wars, from Metternich's Confederation to its disintegration, through dynastic and religious realignment of the German lands, from the medieval empire to the modern state. (Same for Medieval Studies 313-312.)

Revolutions (History 312) The period traditionally seen as a transition from the Middle Ages to the modern world. Interrelations of culture, social, economic, political and intellectual developments, with an empha-

sis upon historical interpretation.

Reformation Europe, 1517-1560 (History 310) The period during which Western Christendom experienced the greatest religious and social upheaval of all time: the Protestant Reformation. The Reformation, however, was not a single event, but a series of protests and reactions that spread throughout Western Europe. The period saw the rise of new religious movements, the emergence of national churches, and the development of new forms of religious expression and practice.

Middle Ages, 1000-1400 (History 308) Height of the medieval period, characterized by the growth of feudalism, the rise of cities, and the development of a new merchant class. The period saw the development of new forms of government, the growth of trade, and the spread of new ideas and technologies.

Modern Europe, 1750-1914 (History 307) Political, industrial and social changes of the modern era, including the French Revolution, the Industrial Revolution, and the rise of nationalism.

African History (371) Ethnic groups of the African continent, including pre-colonial history and the impact of the West and European colonization. Writing-emphasis course.

History of the Middle East (369) Rise and spread of Islamic civilization up to the sixteenth century. Writing-emphasis course.

History of Japan (365) Japanese history from mythological beginnings to the modern era. Writing-emphasis course.

History of China (363) From the rise of China as a major world power to the modern era. Writing-emphasis course.

History of the US Economy (359) Evolution of the US economy from its colonial beginnings to the present. Writing-emphasis course.

United States, 1933 to the Present (358) American political, economic, and social developments from the Great Depression to the present. Writing-emphasis course.

West African History (357) Political, social, and economic developments in West Africa, including the impact of European colonization and the search for African independence. Writing-emphasis course.

Europe and the Conflict and Change Occurring Therefrom 1000-1500 (History 340) The period of the Crusades, the medieval period, and the early modern period. Interrelations of culture, social, economic, political, and intellectual developments, with an emphasis upon historical interpretation.

Southeastern Indian History (439) Southeastern Indian history from the protohistoric period to the present. Writing-emphasis course.

Women in European History (432) Comparative history of major revolutions which transformed Europe and the world. Writing-emphasis course.
326 Food and Lodging Cost Control (3)
Budget, cost calculations, influencing requirements meeting individual needs, methods and techniques for outstanding service. Prereq: 320, 321, or consent of the instructor.

327 Field Experience in Hospitality and Tourism Administration (3) Field study of specialized aspects of hospitality and tourism administration for one to two weeks. Students selected in the course may not work in any other courses. Prereq: 320, 321, or consent of the instructor. Accounting 202, Economics 201. Business Law 301. 100 hours of verifiable work experience. Satisfactory/No Credit only.

328 Hospitality Sales, Marketing, and Strategy (3) Marketing for lodging and restaurant businesses, the use of property, market, and competitive analyses, sales and service planning, pricing, and promotions techniques. Prereq: 320, 321, or consent of the instructor.

329 Advanced Hotel and Restaurant Administration (3) Integration of food service, hotel and restaurant operations, on-site foodservice operations and decision making, marketing, cost control and production, menu design, personnel, and performance evaluations. Prereq: 320, 321, or consent of the instructor.

400 Special Topics: Hotel and Restaurant Administration (1-3) Developments, issues, and problems in hotel and restaurant administration. Topics, schedules, and instructors subject to change. May be repeated. Maximum 12 hours. E Credit only.

415 Hospitality Law (3) Legal rights and responsibilities of the hotel and restaurant environment. Prereq: 320, 321, or consent of the instructor.

430 Hospitality Systems Administration (3) Management concepts, processes, resources in food service systems. Students enrolled in this course may not enroll in any other courses. Prereq: 420. Satisfactory/No Credit only. E Credit only.

435 Special Topics: Hospitality Systems Administration (1-3) May be repeated. Maximum 6 hours. E Credit only.

450 Advanced Lodging Management (3) Provides in-depth menu design, personnel, cost control and production; management of foodservice operations; marketing for lodging and restaurant organizations; includes field trips and presentations, means of motivating, using print aids, and designating educational programs including: job/task analysis, needs assessment, instructional objectives; designing, preparing, and producing educational and training programs, and supporting various learning methods. Prereq: 320, 321, 322 or consent of the instructor.

505 The Environment in Food Service Operations (3) Emphasis on energy, pollution, and furnishing to architectural space. Open only to Hotel and Restaurant Administration majors.

525 Hospitality Systems Management (3) Management, merchandising, and marketing缤of household furniture and furnishings. Prereq: 120, 122, NTR 100 or 101, NTR 101, Micro 210 or Micro 225, introduction to hotel and restaurant industry. Prereq: Consent of instructor. Satisfactory/No Credit only.

526 Hospitality Financial Management (3) Principles for determining needs, processing, producing, and spending funds in volume as in the hospitality industry. Prereq: 120, 122, NTR 100 or 101, NTR 101, Micro 210 or Micro 225, introduction to hotel and restaurant industry. Prereq: Consent of instructor. Satisfactory/No Credit only.

527 Hospitality Purchasing, Production, and Service Laboratory (1) Application of principles in determining needs, ordering, storing, producing, and spending funds in volume as in the hospitality industry. Prereq: 120, 122, NTR 100 or 101, NTR 101, Micro 210 or Micro 225, introduction to hotel and restaurant industry. Prereq: Consent of instructor. Satisfactory/No Credit only.

528 Quantity Food Procurement, Production, and Service Laboratory (1) Application of principles in determining needs, ordering, storing, producing, and spending funds in volume as in the hospitality industry. Prereq: 120, 122, NTR 100 or 101, NTR 101, Micro 210 or Micro 225, introduction to hotel and restaurant industry. Prereq: Consent of instructor. Satisfactory/No Credit only.

529 Quantity Food Preparation, Production, and Service Laboratory (1) Preparation of teaching aids; non-print and print media. Probability, sampling and decision making. Prereq: 420. Satisfactory/No Credit only.

530 Hospitality Information Systems (3) The design and development of information systems. Prereq: 420 or consent of instructor.

531 Convention Management (3) Scope and components of convention management, including requirements meeting individual needs, methods and techniques for outstanding service. Prereq: 320, 321, or consent of the instructor.

532 Hospitality and Tourism Administration (520) Normal communication deviations and special needs of convention attendees. Prereq: 320, 321, or consent of the instructor. May be repeated. Maximum 12 hours.

535 Hospitality Marketing (3) Marketing for lodging and restaurant businesses, the use of property, market, and competitive analyses, sales and service planning, pricing, and promotions techniques. Prereq: 320, 321, or consent of the instructor.

536 Hospitality Law (3) Legal rights and responsibilities of the hotel and restaurant environment. Prereq: 320, 321, or consent of the instructor.

537 Hospitality Systems Administration (3) Management concepts, processes, resources in food service systems. Students enrolled in this course may not enroll in any other courses. Prereq: 420. Satisfactory/No Credit only. E Credit only.

538 Hospitality Financial Management (3) Principles for determining needs, processing, producing, and spending funds in volume as in the hospitality industry. Prereq: 120, 122, NTR 100 or 101, NTR 101, Micro 210 or Micro 225, introduction to hotel and restaurant industry. Prereq: Consent of instructor. Satisfactory/No Credit only.

539 Hospitality Purchasing, Production, and Service Laboratory (1) Application of principles in determining needs, ordering, storing, producing, and spending funds in volume as in the hospitality industry. Prereq: 120, 122, NTR 100 or 101, NTR 101, Micro 210 or Micro 225, introduction to hotel and restaurant industry. Prereq: Consent of instructor. Satisfactory/No Credit only.

540 Hospitality Information Systems (3) The design and development of information systems. Prereq: 420 or consent of instructor.

541 Hospitality Marketing (3) Marketing for lodging and restaurant businesses, the use of property, market, and competitive analyses, sales and service planning, pricing, and promotions techniques. Prereq: 320, 321, or consent of the instructor.

542 Hospitality Law (3) Legal rights and responsibilities of the hotel and restaurant environment. Prereq: 320, 321, or consent of the instructor.

543 Hospitality Systems Administration (3) Management concepts, processes, resources in food service systems. Students enrolled in this course may not enroll in any other courses. Prereq: 420. Satisfactory/No Credit only. E Credit only.

544 Hospitality Financial Management (3) Principles for determining needs, processing, producing, and spending funds in volume as in the hospitality industry. Prereq: 120, 122, NTR 100 or 101, NTR 101, Micro 210 or Micro 225, introduction to hotel and restaurant industry. Prereq: Consent of instructor. Satisfactory/No Credit only.

545 Hospitality Purchasing, Production, and Service Laboratory (1) Application of principles in determining needs, ordering, storing, producing, and spending funds in volume as in the hospitality industry. Prereq: 120, 122, NTR 100 or 101, NTR 101, Micro 210 or Micro 225, introduction to hotel and restaurant industry. Prereq: Consent of instructor. Satisfactory/No Credit only.

546 Hospitality Information Systems (3) The design and development of information systems. Prereq: 420 or consent of instructor.

547 Hospitality Marketing (3) Marketing for lodging and restaurant businesses, the use of property, market, and competitive analyses, sales and service planning, pricing, and promotions techniques. Prereq: 320, 321, or consent of the instructor.

548 Hospitality Law (3) Legal rights and responsibilities of the hotel and restaurant environment. Prereq: 320, 321, or consent of the instructor.

549 Hospitality Systems Administration (3) Management concepts, processes, resources in food service systems. Students enrolled in this course may not enroll in any other courses. Prereq: 420. Satisfactory/No Credit only. E Credit only.

550 Hospitality Financial Management (3) Principles for determining needs, processing, producing, and spending funds in volume as in the hospitality industry. Prereq: 120, 122, NTR 100 or 101, NTR 101, Micro 210 or Micro 225, introduction to hotel and restaurant industry. Prereq: Consent of instructor. Satisfactory/No Credit only.

551 Hospitality Purchasing, Production, and Service Laboratory (1) Application of principles in determining needs, ordering, storing, producing, and spending funds in volume as in the hospitality industry. Prereq: 120, 122, NTR 100 or 101, NTR 101, Micro 210 or Micro 225, introduction to hotel and restaurant industry. Prereq: Consent of instructor. Satisfactory/No Credit only.

552 Hospitality Information Systems (3) The design and development of information systems. Prereq: 420 or consent of instructor.

553 Hospitality Marketing (3) Marketing for lodging and restaurant businesses, the use of property, market, and competitive analyses, sales and service planning, pricing, and promotions techniques. Prereq: 320, 321, or consent of the instructor.

554 Hospitality Law (3) Legal rights and responsibilities of the hotel and restaurant environment. Prereq: 320, 321, or consent of the instructor.

555 Hospitality Systems Administration (3) Management concepts, processes, resources in food service systems. Students enrolled in this course may not enroll in any other courses. Prereq: 420. Satisfactory/No Credit only. E Credit only.
361 Nurturative Skills in Occupations (1-15) **Applicants must complete course of 20 credits; occupational experience completed with State Board requirements. Letter of formal induction and the submission of analers and experiments are required to be awarded credit. Must be taken in the same semester and directed by the instructor. May be repeated. Minimum 15 hours. Satisfactory/No Credit only. E

362 Marketing in Industrial Education (1-15) Updating and implementing experiences in nontraditional settings for the teacher. May be repeated. Minimum of 6 hours. Satisfactory/No Credit only. E

363 Graphic Reproduction (2) Principles of penmanship, photography, and other forms of graphic communication; and laboratory experience in SLR camera applications, common copy preparation, film and black photography, layout, trapping, platemaking, and offset processes. F

364 Print Technology (3) Characteristics and applications of thermoplastic and thermosetting materials. Printing equipment, related product design and processing of plastics. Prereg: 165 and admission to Teacher Education Program. Sp

370 Technology Systems I (8) A systems approach to the study of technology. Problem solving in the design process with emphasis on the production and measurement tools used to create products and systems. Prereg: 161, 201, and 306. Sp


415 Coordination Techniques (3) Necessary procedures, duties, and responsibilities to implement, maintain, and evaluate technological systems. Prereg: 440. E

421 Introduction to Adult Education (3) Benefits of adult education activities and the diversity of adult needs. Identification of professional practices different from traditional instructional settings. A

422 Adult Development and Training (2) Application of adult development concepts to design and manage occupational training programs. Prereg: 421. Sp

430 Principles and Organization of Business Marketing (3) The historical background and development needs. Principles of vocational education in business (marketing, accounting, computer applications, sales, etc.). Evaluating, implementing the programs. Prereg: Admission to Teacher Education Program. Sp

451 Business and Marketing Education Youth Programs (1-15) Youth programs related to the instructional areas of business education and marketing education. Membership.

441 Materials and Processes I (6) Fundamental aspects of materials, control, methods, and their applications in production processes. Separating, forming, conditioning, and joining. F


452 Technology in Learning Environments (3) The use of diverse technology for creating and facilitating learning experiences and learning. Interactive strategies that aid in helping learners to acquire knowledge, understanding, and skills. Prereg: 371 and 441. Sp


471 Principles of Supervision/Leadership (3) Problems of motivation, communication, interpersonal relations, and leadership. Sp

472 Integrating Organizational and Career Development (3) Methods of organizational development, including design and implementation of personnel development; and the role of personnel in organizational development. Prereg: 411. F


474 Supervised Occupational Experience (3) Practical field experience in businesses or communities related to the objectives set forth by the instructor. May be repeated for a maximum of 6 hours. Prereg: Junior or senior standing.

475 Directed Study in Human Resource Development (3) To have supervised individual work experience with a supervising faculty member. Approval must be filed in the departmental office. May be repeated for a maximum of 6 hours. Prereg: Junior or senior standing.

479 Directed Study in Family and Consumer Science Education (3-4) Preparation for teaching and managing secondary school programs in Family and Consumer Sciences.

480 Special Topics in Human Resource Development (1-3) To be assigned. May be repeated. Prereg: Must be arranged with the instructor.

HUMAN SERVICES (532)

202 Introduction to Human Services (2) Focus on human service values and contemporary issues in human services. Emphasis on interpersonal relationships; introduction to the complexities of human needs and social problems.

335 Thinking About People (3) Development of thought, research, and applied knowledge for human services. Emphasis on the multidimensional aspects of human behaviors and societies. Must be taken in the fall semester. F

341 Human Services Methodologies I (3) A critical exploration and evaluation of current methodologies and research in the human service professions. Prereg: 202; 330; Coreq: 411. F

342 Human Services Methodologies II (3) A critical exploration and evaluation of current methodologies and research in the human service professions. Prereg: 202; 330; Coreq: 411. Sp

350 Information Interpretation and Assessment (2) A critical appreciation and evaluation of the methods and techniques used in the human service professions. F

471 Early Childhood Special Education (6) Assessment, planning, delivery, and evaluation of programs for the development of young children. Emphasis on the various methods and approaches for planning and teaching young children, including delivery of special education services. Prereg: Admission to Teacher Education Program.

472 Field Experience in Early Childhood Special Education (6) Field experience in early childhood programs for disabled students. Prereg: 471; coreq: 480. F

494 Internship in Human Resource Development (1-15) To be assigned. Must be arranged with the instructor. E

496 Supervised Readings (1-3) To be assigned. May be repeated. Maximum 12 hours. E

480 Directed Study in Human Resource Development (3) To have supervised individual work experience with a supervising faculty member. Approval must be filed in the departmental office. May be repeated for a maximum of 6 hours. Prereg: Junior or senior standing.

INCLUSIVE EARLY CHILDHOOD EDUCATION (542)

456 Early Childhood Special Education (3) Initial introduction to the field of early childhood special education. The nature of special education, the role of the teacher, and the legal aspects of special education. Prereg: Admission to Teacher Education Program.

457 Early Childhood Special Education (3) A formal introduction to the field of early childhood special education. The nature of special education, the role of the teacher, and the legal aspects of special education. Prereg: Admission to Teacher Education Program. Prereg: Admission to Teacher Education Program. May be repeated. Maximum 12 hours. F

493 Independent Study (1-4) To be assigned. May be repeated. Maximum 12 hours. E

496 Special Topics (1-4) Topic to be assigned. May be repeated. Maximum 12 hours. E

INFORMATION SCIENCES (560)

101 Information Foundations (3) Nature of information, sources, storage, processing, retrieval, principles, transfer, uses in society, ethics, privacy, copyright, and management of information on computerized systems. Undergraduate credit only.

102 Technologies for Information Retrieval (3) Principles, technologies, and uses of computer-based information management applications: software identification and access, and application of human computer interfaces. Database, information systems and technology for national computer networks; information retrieval via computer. Undergraduate credit only.

103 Information Seeking: Resources and Strategies (3) Principles, practices, and ethics of effective information seeking in the workplace and professional environments. Formulation of search strategies and evaluation of information sources. Focus on topics relevant to professionals. F

300 Books and Related Materials for Children (3) Materials for children in various time or classroom settings; criteria for selecting books, magazines, recordings, and electronic media; and strategies for helping students select and monitor their use. Prereg: 300, 400, 442. Satisfactory/No Credit only. F

822 Information Systems for Teaching and Learning (3) Design and implementation of instructional technology to achieve desired educational outcomes. Focus on topics relevant to professionals. F

901 Information Foundations (3) Nature of information, sources, storage, processing, retrieval, principles, transfer, uses in society, ethics, privacy, copyright, and management of information on computerized systems. Undergraduate credit only.

902 Technologies for Information Retrieval (3) Principles, technologies, and uses of computer-based information management applications: software identification and access, and application of human computer interfaces. Database, information systems and technology for national computer networks; information retrieval via computer. Undergraduate credit only.

910 Information Seeking: Resources and Strategies (3) Principles, practices, and ethics of effective information seeking in the workplace and professional environments. Formulation of search strategies and evaluation of information sources. Focus on topics relevant to professionals. F
365 Information Consumer (3) Information in society, information economics, knowledge-creating society publishing and information production, books, bulletin boards, etc. Information development, information management, science fiction, information-gathering computer systems; understanding environments, environment scanning, information consumption techniques, use of the computer.

430 History of the Book (3) History of writing and various methods of bookmaking.

456 Writing About Science, Technology and Medicine (3) Same as anthropology 456.

475 Utilization of Instructional Media (3) Same as Educational Curricula and Instruction 475. E

488 Electronic Communication and Information Resources on Internet (3) Exploration of worldwide information and communication resources including Usenet news, Archie, WAIS, Prodigy, gopher, Veronica, WAIS, WWW, and newsgroups. E

492 Off-Campus Study (1-15) Registration by permission of the director of Interdisciplinary Studies.

493 Directed Studies in Interior Design (1-4) Student project or staff initiated research. Prerequisite: consent of instructor.

494 Directed Studies in Environmental Design (1-3) Student project or staff initiated research. Prerequisite: consent of instructor.

INTERDISCIPLINARY PROGRAMS (581)

300 Selected Topics (1-3) May be repeated. Maximum 12 hours.

311 History of the Contemporary Interior Architecture (3) Historical developments in interior architecture and decoration. Emphasis on the role of the human being and the environment. Prerequisites: Consent of instructor. F

370-372 Fundamentals of Interior Design I (5) Principles of interior design, planning methodology, design principles, spatial and visual elements within simple and complex systems; interaction of time, function and space. Three hour studio. Prerequisite: Permission of the instructor.

392 Advanced Interior Design I (4) Non-residential design of space, functional and aesthetic considerations. Emphasis on the role of the human being and the environment. Prerequisites: Intermediate or consent of instructor. F

401 Computer-Assisted Design (3) Interaction between computer-aided design process, database, spreadsheet and electronic mail. Emphasis on the role of the human being and the environment. Prerequisite: Permission of the instructor.

402 Petrarch and Boccaccio (3) Prerequisite: 212 or consent of instructor. F

410 Italian Theatre (3) Survey of Italian theatre from 15th century to present focusing on major works and their place in the history of western theatre. Prerequisite: 212 or consent of instructor. F

411 Honors: Interior Design (1-4) Advanced research in interior design problems for juniors or seniors. May be repeated. Maximum 4 credits. Consent of instructor. F

412 Honors: Interior Design (1-4) Advanced research in interior design problems for juniors or seniors. May be repeated. Maximum 4 credits. Consent of instructor. F

413 Prose XIX (3) Exploration of space and behavior within buildings. Emphasis on the role of the human being and the environment. Five hour studio. Prerequisite: 212 or consent of instructor. F

420 Practicum for Interior Design (12) Supervised experience in a professional design firm. Emphasis on the role of the human being and the environment. Prerequisite: Consent of instructor. F

421-422 Intermediate Italian (3,3) Sequence stresses reading, writing, listening and speaking in authentic Italian. Prerequisites: Consent of instructor. F

425 Writing About Science, Technology and Medicine (3) Principles of interior design, planning methodology, design principles, spatial and visual elements within simple and complex systems; interaction of time, function and space. Three hour studio. Prerequisite: Permission of the instructor.

433 Needs Assessment and Design Programming (3) Systematic method for design problem solving and presentation. Emphasis on the role of the human being and the environment. Consent of instructor. F

491 International Study (1-15) Individual or group study and/or studying abroad. Academic, research, field investigation, or study experience. Determination of student's eligibility and consent of instructor. F

495 Directed Studies in Environmental Design (1-5) Master's degree. Independent research in interior design analysis. Prerequisite: Consent of instructor.

ITALIAN (584)

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

119 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 this value of language study and international cultural awareness in the world business. Recommended to 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 in authentic Italian for upper division course in the language. Must be taken in sequence. Consent of instructor. F

300 Selected Interdisciplinary Topics (1-12) Acceptable for major or minor credit. May not be repeated for credit for a maximum of 12 hours. Letter grade only. F

301 Italian Civilization 1-2 (3,3) Italian civilization with special attention to major social, political and cultural achievements. Prerequisite: 212 or consent of instructor.

311 History of Interior Architecture (4) Historical developments in interior architecture and decoration. Emphasis on the role of the human being and the environment. Prerequisites: 212 or consent of instructor. F

312 History of Italian Literature (3) Chronological presentation of Italian literature with emphasis on the role of the human being and the environment. Prerequisites: 212 or consent of instructor. F

341-342 Intermedio Grammam, Composicion and Conversacion (3,3) Intermediate analysis of Italian phonetics, review of grammatical principles and their application to writing. Emphasis on the role of the human being and the environment. Prerequisites: 212 or consent of instructor. F

351 Modern Italian Poetry (3) Prerequisites: 212 or consent of instructor.

364 Environmental Factors in Design (3) Study factors influencing the human being and the role of the human being and the environment. Prerequisite: Consent of instructor.

370-372 Fundamentals of Interior Design I (5) Principles of interior design, planning methodology, design principles, spatial and visual elements within simple and complex systems; interaction of time, function and space. Three hour studio. Prerequisite: Permission of the instructor.

400 Prose XIX (3) Exploration of space and behavior within buildings. Emphasis on the role of the human being and the environment. Five hour studio. Prerequisite: 212 or consent of instructor. F

404 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 this value of language study and international cultural awareness in the world business. Recommended to students majoring in Language and World Business. See the Director for further information.

420 Practicum for Interior Design (12) Supervised experience in a professional design firm. Emphasis on professional relationships and business practices, responsibility, and ethics. Prerequisite: Third year standing in interior design. F

421-422 Intermediate Italian (3,3) Sequence stresses reading, writing, listening and speaking in authentic Italian for upper division course in the language. Must be taken in sequence. Consent of instructor. F

425 Writing About Science, Technology and Medicine (3) Principles of interior design, planning methodology, design principles, spatial and visual elements within simple and complex systems; interaction of time, function and space. Three hour studio. Prerequisite: Permission of the instructor.

433 Needs Assessment and Design Programming (3) Systematic method for design problem solving and presentation. Emphasis on the role of the human being and the environment. Consent of instructor. F

491 International Study (1-15) Individual or group study and/or studying abroad. Academic, research, field investigation, or study experience. Determination of student's eligibility and consent of instructor. F

495 Directed Studies in Environmental Design (1-5) Master's degree. Independent research in interior design analysis. Prerequisite: Consent of instructor.
| Courses of Instruction | 187 |

**JOURNALISM (594)**

<table>
<thead>
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<th>Course Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>201</td>
<td>Writing for Mass Media (3)</td>
<td>Principles and practice of news writing suitable for all Comprehensive Exams. Emphasis on the overall structure and content of news stories. Focus on the writing of news articles, features, and columns.</td>
<td>Requires a basic understanding of journalism and writing. Prerequisite: English 102 or equivalent.</td>
</tr>
<tr>
<td>202</td>
<td>News Writing (3)</td>
<td>Writing for print and electronic media. Focus on the practical aspects of news writing, including the writing of news stories, editorials, and columns.</td>
<td>Requires a basic understanding of journalism and writing. Prerequisite: English 102 or equivalent.</td>
</tr>
<tr>
<td>203</td>
<td>Editing (3)</td>
<td>Methods and practice in judging news, editing copy, writing headlines, and designing newspapers and magazines.</td>
<td>Requires a basic understanding of journalism and writing. Prerequisite: English 102 or equivalent.</td>
</tr>
<tr>
<td>280</td>
<td>Communications Graphics (3)</td>
<td>Principles and practices of visual communication. Emphasis on the use of graphics in news and feature writing.</td>
<td>Requires a basic understanding of journalism and writing. Prerequisite: English 102 or equivalent.</td>
</tr>
<tr>
<td>290</td>
<td>Photojournalism (3)</td>
<td>Principles and practice of photography as a tool of communication, with an emphasis on black-and-white photography.</td>
<td>Requires a basic understanding of journalism and writing. Prerequisite: English 102 or equivalent.</td>
</tr>
<tr>
<td>310</td>
<td>Feature Writing (3)</td>
<td>Skill of journalism for writing feature articles for newspapers, magazines, and other publications. Focus on the writing of feature articles, with an emphasis on the use of graphics and photography.</td>
<td>Requires a basic understanding of journalism and writing. Prerequisite: English 102 or equivalent.</td>
</tr>
<tr>
<td>444</td>
<td>Journalism as Literature (3)</td>
<td>Study of writers from the 17th century to the modern era whose works have had a significant impact on journalism.</td>
<td>Requires a basic understanding of journalism and writing. Prerequisite: English 102 or equivalent.</td>
</tr>
<tr>
<td>460</td>
<td>Mass Communications History (3)</td>
<td>Development of mass communications channels and the history of media.</td>
<td>Requires a basic understanding of journalism and writing. Prerequisite: English 102 or equivalent.</td>
</tr>
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**LANGUAGES AND COMMUNICATIONS (588)**

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<tr>
<td>111</td>
<td>Introduction to Latin (3)</td>
<td>An introduction to the basics of Latin, including grammar, vocabulary, and reading.</td>
<td>Requires a basic understanding of Latin. Prerequisite: Latin 101 or equivalent.</td>
</tr>
<tr>
<td>112</td>
<td>Latin Composition (3)</td>
<td>Focuses on the writing of Latin essays and letters.</td>
<td>Requires a basic understanding of Latin. Prerequisite: Latin 101 or equivalent.</td>
</tr>
<tr>
<td>251</td>
<td>Intermediate Latin: Grammar Review and Reading (3)</td>
<td>A review of grammar and reading, with an emphasis on the writing of Latin essays and letters.</td>
<td>Requires a basic understanding of Latin. Prerequisite: Latin 101 or equivalent.</td>
</tr>
<tr>
<td>252</td>
<td>Intermediate Latin: Grammar Review and Reading (3)</td>
<td>A review of grammar and reading, with an emphasis on the writing of Latin essays and letters.</td>
<td>Requires a basic understanding of Latin. Prerequisite: Latin 101 or equivalent.</td>
</tr>
<tr>
<td>351</td>
<td>Roman Lyric Poetry (3)</td>
<td>Poetry of Catullus, Horace, Ovid, and the elegists.</td>
<td>Requires a basic understanding of Latin. Prerequisite: Latin 101 or equivalent.</td>
</tr>
<tr>
<td>352</td>
<td>Latin Placement Examination (3)</td>
<td>An examination to determine a student's proficiency in Latin.</td>
<td>Requires a basic understanding of Latin. Prerequisite: Latin 101 or equivalent.</td>
</tr>
<tr>
<td>431</td>
<td>Medieval Art of the West, 800-1400 (3)</td>
<td>Focuses on the history and art of the Middle Ages, with an emphasis on the role of art in society.</td>
<td>Requires a basic understanding of Latin. Prerequisite: Latin 101 or equivalent.</td>
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**LATIN (257)**

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<tr>
<td>111</td>
<td>Beginning Latin (3)</td>
<td>Intended for those with no prior knowledge of Latin. Focuses on the fundamentals of Latin grammar and syntax.</td>
<td>Requires a basic understanding of Latin. Prerequisite: None.</td>
</tr>
<tr>
<td>112</td>
<td>Latin Composition (3)</td>
<td>Focuses on the writing of Latin essays and letters.</td>
<td>Requires a basic understanding of Latin. Prerequisite: Latin 101 or equivalent.</td>
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<tr>
<td>113</td>
<td>Latin Composition (3)</td>
<td>Focuses on the writing of Latin essays and letters.</td>
<td>Requires a basic understanding of Latin. Prerequisite: Latin 101 or equivalent.</td>
</tr>
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<td>251</td>
<td>Intermediate Latin: Grammar Review and Reading (3)</td>
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<td>Requires a basic understanding of Latin. Prerequisite: Latin 101 or equivalent.</td>
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**LATIN AMERICAN STUDIES (578)**

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<tbody>
<tr>
<td>201</td>
<td>Introduction to Latin American Studies (3)</td>
<td>An introduction to the history, culture, and politics of Latin America.</td>
<td>Requires a basic understanding of Latin American culture. Prerequisite: Latin American Studies 101 or equivalent.</td>
</tr>
<tr>
<td>202</td>
<td>Latin America: A Continent in Transition (3)</td>
<td>Focuses on the history and politics of Latin America, with an emphasis on the role of religion and politics in society.</td>
<td>Requires a basic understanding of Latin American culture. Prerequisite: Latin American Studies 101 or equivalent.</td>
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**LINGUISTICS (585)**

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<tr>
<td>313</td>
<td>Language and Mind (3)</td>
<td>Focuses on the role of language in human cognition and the study of language acquisition.</td>
<td>Requires a basic understanding of linguistics. Prerequisite: Linguistics 101 or equivalent.</td>
</tr>
<tr>
<td>314</td>
<td>Language and Cognition (3)</td>
<td>Focuses on the role of language in human cognition and the study of language acquisition.</td>
<td>Requires a basic understanding of linguistics. Prerequisite: Linguistics 101 or equivalent.</td>
</tr>
<tr>
<td>315</td>
<td>Language and Society (3)</td>
<td>Focuses on the role of language in human cognition and the study of language acquisition.</td>
<td>Requires a basic understanding of linguistics. Prerequisite: Linguistics 101 or equivalent.</td>
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**MUSIC (590)**

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<tr>
<td>201</td>
<td>Introduction to Music Theory (3)</td>
<td>Focuses on the fundamentals of music theory, including the study of scales, chords, and melodies.</td>
<td>Requires a basic understanding of music. Prerequisite: Music Theory 101 or equivalent.</td>
</tr>
<tr>
<td>202</td>
<td>Advanced Music Theory (3)</td>
<td>Focuses on the advanced study of music theory, including the study of counterpoint and fugue.</td>
<td>Requires a basic understanding of music. Prerequisite: Music Theory 101 or equivalent.</td>
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</table>

**PHILOSOPHY (595)**

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<tr>
<td>312</td>
<td>Medieval Philosophy (3)</td>
<td>Writing emphasis course. (Same as Religious Studies 312.)</td>
<td>Requires a basic understanding of philosophy. Prerequisite: Consent of instructor.</td>
</tr>
<tr>
<td>314</td>
<td>Modern Philosophy (3)</td>
<td>Writing emphasis course. (Same as Religious Studies 314.)</td>
<td>Requires a basic understanding of philosophy. Prerequisite: Consent of instructor.</td>
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**PSYCHOLOGY (596)**

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<tr>
<td>201</td>
<td>Introduction to Psychology (3)</td>
<td>Focuses on the fundamentals of psychology, including the study of cognitive processes and behavior.</td>
<td>Requires a basic understanding of psychology. Prerequisite: None.</td>
</tr>
<tr>
<td>202</td>
<td>Contemporary Psychological Issues (3)</td>
<td>Focuses on the fundamentals of psychology, including the study of cognitive processes and behavior.</td>
<td>Requires a basic understanding of psychology. Prerequisite: None.</td>
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</table>

**SOCIAL SCIENCE (597)**

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<tr>
<td>201</td>
<td>Introduction to Sociology (3)</td>
<td>Focuses on the fundamentals of sociology, including the study of social structure and social processes.</td>
<td>Requires a basic understanding of sociology. Prerequisite: None.</td>
</tr>
<tr>
<td>202</td>
<td>Contemporary Sociology (3)</td>
<td>Focuses on the fundamentals of sociology, including the study of social structure and social processes.</td>
<td>Requires a basic understanding of sociology. Prerequisite: None.</td>
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**SPECIAL STUDIES (599)**

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<td>315</td>
<td>Language and Society (3)</td>
<td>Focuses on the role of language in human cognition and the study of language acquisition.</td>
<td>Requires a basic understanding of linguistics. Prerequisite: Linguistics 101 or equivalent.</td>
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</table>
500 Intermediate Algebra (3) First degree equations and inequalities for students who sat- 201 MATH 115 Statistical Reasoning (3) An introduction to probability 540 International Marketing (3) Specific issues in- volved in developing marketing strategy for service firms. Takes the student beyond the mar- keting mix and examines the interplay of the environment, the customer, and the manage- ment's visuon of the business. Prereq: Math 110, 115, 119, or 130. 502 Service Marketing (3) Marketing's role in developing marketing strategy for service firms. Takes the student beyond the marketing mix and examines the interplay of the environment, the customer, and the management's vision of the business. Prereq: Math 110, 115, 119, or 130. 1403 Calculus I (4) First course in single-variable calculus. Topics include limits, continuity, differentiability, and the mean-value theorem. Prereq: Math 119, 123, or 130; or Math 130. 1402 Calculus II (4) Second course in single-variable calculus. Topics include integration, sequences and series, and convergence. Prereq: 1403. 1404-1405 Calculus Laboratory (1,1) Optional laboratory sections for Math 140, 141, 142. Prereq: 1401 or Math 130. Consent of instructor. 1411-1412 Calculus I Laboratory (4,4) First course in single-variable calculus. Topics include limits, continuity, differentiability, and the mean-value theorem. Prereq: Math 119, 123, or 130; or Math 130. 1413-1414 Calculus II Laboratory (4,4) Second course in single-variable calculus. Topics include integration, sequences and series, and convergence. Prereq: 1411. 1415-1416 Calculus Laboratory (1,1) Optional laboratory sections for Math 141, 142. Prereq: 1413 or 1414. Consent of instructor.
401 Medieval Literature (4) (A) Medical model work in biology, chemistry, physical anthropology, and archaeology. (B) Laboratory emphasis with an emphasis on biological anthropology. (C) Literature emphasis with an emphasis on archaeological anthropology. (D) Laboratory work in options in medical anthropology.

402 Reformation and European Thought (3) (A) European culture in the period of the Reformation. (B) Theological and philosophical developments of the Reformation. (C) The relationship of the Reformation to the cultural and intellectual developments of the period. (D) Theological and philosophical developments of the Reformation in the context of European thought.

403 Medieval Literature (4) (A) Medical model work in biology, chemistry, physical anthropology, and archaeology. (B) Laboratory emphasis with an emphasis on biological anthropology. (C) Literature emphasis with an emphasis on archaeological anthropology. (D) Laboratory work in options in medical anthropology.

404 Reformation and European Thought (3) (A) European culture in the period of the Reformation. (B) Theological and philosophical developments of the Reformation. (C) The relationship of the Reformation to the cultural and intellectual developments of the period. (D) Theological and philosophical developments of the Reformation in the context of European thought.

405 Medieval Literature (4) (A) Medical model work in biology, chemistry, physical anthropology, and archaeology. (B) Laboratory emphasis with an emphasis on biological anthropology. (C) Literature emphasis with an emphasis on archaeological anthropology. (D) Laboratory work in options in medical anthropology.

406 Reformation and European Thought (3) (A) European culture in the period of the Reformation. (B) Theological and philosophical developments of the Reformation. (C) The relationship of the Reformation to the cultural and intellectual developments of the period. (D) Theological and philosophical developments of the Reformation in the context of European thought.
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Courses of Instruction

rials of resistance to disease. Prereq: Biology 140. Conwy 230. 3 Credit.

402 Military Biology Practicum I (3) A laboratory experience in the labo- ratory that concentrates on students' individual weaknesses. Emphasis on practical techniques of playing, care and repair of principal instruments.

400 Laboratory Problems in Microbiology (2-4) Prerequisite: United States citizen; minimum of 3 years remaining to complete degree. Letter grade only. 2 hour class and 1 hour lab. Sp.

398 Music for Elementary Teachers (2) Singing, rhythm, ear training, fundamentals, music theory, improvisation, reading open vocal scores, simple accompaniments. May be repeated once for credit. F, Sp. Credit/No Credit only.

397 Class Percussion Methods (3) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. Letter grade only. 3 hours and 1 hour lab. Sp.

396 Independent Study (1-15) Consent of instructor. May be repeated once for credit. F, Sp.

395 Field Experience in Music Education (1) Prerequisite: Consent of instructor. May be repeated once for credit. F, Sp.

394 Undergraduate Research in Microbiology (2-15) Research projects under the direction of a faculty member. May be repeated once for credit. F, Sp.

393 Course of Study in Music Education (2) Introduction of basic teaching principles, multiple modal patterns and the technical techniques of conducting including rudiments of the full score. Achieving complete physical control, preparation of conducting materials. Video tapes of all student conductors. Prerequisite: Consent of instructor and admission to Teacher Education Program. Letter grade only. F, Sp.

392 Class String Methods (2) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. Letter grade only. 3 hours and 1 hour lab. Sp.

391 Student Teaching in Music (12) Full time teaching practice in a school under the direction of the faculty supervisor. Prerequisite: Consent of instructor. Letter grade only. Minimum 3 hours. F, Sp.


390 Independent Study (1-15) Consent of instructor. May be repeated once for credit. F, Sp.

389 Student Teaching in Music (12) Full time teaching practice in a school under the direction of the faculty supervisor. Prerequisite: Consent of instructor. Letter grade only. Minimum 3 hours. F, Sp.

388 Senior Seminar (3) Methods and materials for teaching music in the elementary school. Prerequisite: Consent of instructor and admission to Teacher Education Program. Letter grade only. F, Sp.

387 Middle School Music (3) History, techniques, and procedures of teaching music in the middle school. Prerequisite: Consent of instructor and admission to Teacher Education Program. Letter grade only. F, Sp.

386 Elementary Music Education (3) Selected topics dealing with current world of music, challenges facing the music in the future. Adventure training skills lab includes mountaineering, field exercises, and wilderness survival skills. Prerequisite: United States citizen; freshman or sophomore standing. Students with high school standing have consent of instructor. Letter grade only. F, Sp.

385 Media Ethics and Law (4) Military profession, ethical reasoning, staff operations, military leadership and management, public relations, military justice, and official communications. Prerequisite: Law of Land Warfare. Prereq: 330 and 400. 4 in one consent of instructor. Letter grade only. 3 hours and 1 hour lab. Sp.

383 U.S. Military History, 1764 to the Present (3) The development of U.S. military strategy and policy, the role of the military in American society, and the impact of military forces on American society. Prerequisite: Consent of instructor. Letter grade only. F, Sp.

381 Music Education (707) 3 Credit.

378 Music for Elementary Teachers (3) Singing, rhythm, ear training, fundamentals, music theory, improvisation, reading open vocal scores, simple accompaniments. May be repeated once for credit. F, Sp. Credit/No Credit only.

376 Middle School Teachers (3) Selective topics dealing with current world of music, challenges facing the music in the future. Adventure training skills lab includes mountaineering, field exercises, and wilderness survival skills. Prerequisite: United States citizen; freshman or sophomore standing. Students with high school standing have consent of instructor. Letter grade only. F, Sp.

375 Introduction to Music Education (3) Selected topics dealing with current world of music, challenges facing the music in the future. Adventure training skills lab includes mountaineering, field exercises, and wilderness survival skills. Prerequisite: United States citizen; freshman or sophomore standing. Students with high school standing have consent of instructor. Letter grade only. F, Sp.
310 Music Performance (2) Individualized course of study combining participation in a University ensemble with collaborative study of an instrument or voice. One hour of applied study (Music Performance 103-440) and three hours of ensemble activity (Music Ensemble 200-497). May be repeated once for credit. Requires payment of Applied Music fee. F, Sp.


200 Introduction to Music Literature (3) Basic form of music and accepted master works through chronological approach. For music majors and minors only. F, Sp.

110 Jazz Theory (2) Fundamentals of the jazz language, including terminology, chord symbols, chord progressions, and chord substitutions. Prerequisite: Music Theory 110. 120-220 Jazz Improvisation I, II (2,2) Study and application of principles of improvisation, including: note selection, chord progression, chord changes, metrical patterns, melodic development, and tonal music. Prerequisite: Music Theory 110. 420 Jazz Pedagogy (1) Methods and materials relating to teaching of jazz, designing and administering jazz classes, and preparing students for enrollment in Music Performance 103-195. May be repeated once for credit. Requires payment of Applied Music fee. F, Sp.

120 Analysis of Jazz Styles (2) Individual improvisation styles through analysis of their transcribed solos. Transcription and analysis of solos from recordings and preparation of analysis. Prerequisite: Music Theory 110.

310 Brass Literature and Pedagogy (3) Survey of brass solo and ensemble literature, including instructional materials and methods. Application of pedagogical principles to individual instruction and performance demonstration lessons by applied woodwind faculty and class members. Prerequisite: Consent of instructor.

200-497). May be repeated once for credit. Requires payment of Applied Music fee. Fornon-majorsonly.

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-American Studies 350.) Writing-emphasis course. F, Sp.

490 Church Music Methods and Administration (3) Survey of worship music within the Christian tradition, including liturgical and historical eras through selected writings. Writing-emphasis course. Prerequisite: Consent of instructor.

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200-497). May be repeated once for credit. Requires payment of Applied Music fee. Fornon-majorsonly.

220 Sheet Music Reading and Writing (1) Theory and practice of music reading through notation software and keyboard practice. Prerequisite: Music Theory 110.

330-532 Collegium (1,1) May be repeated. Minimum 4 hours.

320-470 Jazz Band Arranging (2) Arranging and scoring for jazz bands. Prerequisite: Consent of instructor.

420 History of Opera (3) Dramatic, vocal, and orchestral approaches to opera of Italian, French, and German schools. 1600-present. Prerequisite: Music Theory 210-220. 340-341 Contemporary Trends in American Church Music I, II (2,2) Survey of current trends in popular contemporary style, emphasizing analysis and evaluation criteria. Materials taken in class. 340 includes composition appropriate to the style. 341 includes composition with emphasis on the style. Prerequisite: Consent of instructor.


310 Jazz Composition and Arranging (2) Prerequisite: Consent of instructor.

310-389). May be repeated once for credit. Requires payment of Applied Music fee. Fornon-majorsonly.

370-380 Symphony Orchestra (1,1) May be repeated. Minimum 12 hours.


310-470 Jazz Band Arranging (2) Arranging and scoring for jazz bands. Prerequisite: Consent of instructor.

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-American Studies 350.) Writing-emphasis course. F, Sp.

310-389). May be repeated once for credit. Requires payment of Applied Music fee. Fornon-majorsonly.

310-470 Jazz Band Arranging (2) Arranging and scoring for jazz bands. Prerequisite: Consent of instructor.

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411 Nuclear Instrumentation (3) Course concerns non-emergencies, sampling, and measurement quality assurance. Non-radiology topics include basic radiation detection, their applications, limitations, and limitations on the basis of electronic, gas, liquid detectors, atomic counting, and solid and electron detection elements; system malfunctions and instrumentation failure. Quality assurance in the laboratory and on the wards. Radiation safety, legal regulations, and international safety. 1 lecture, 1 lab.

412 Radiopharmacy (2) Emphasis on basic chemistry and chemical nomenclature in radiopharmacy. Topics include radiochemistry, quality control, safety, and dosage. 2 lectures.

420-430-440 Clinical Nuclear Medicine I, II, III (4, 4, 4) Radiopharmaceuticals and radionuclides, radionuclide chemistry, and dosage. Clinical applications of radionuclides in nuclear medicine. 2 lectures, 1 lab.

450-460-470 Clinical Practicum I, II, III (4, 6, 6) Clinical courses. Application of the nuclear medicine patient, patient care, and problem solving. 2 lectures, 1 lab.

480 Clinical Nuclear Practicum (2) Emphasizes on the practice of nuclear medicine in the clinical setting. 2 lectures.

491 Nuclear Medicine Registry Review (2) Preparation for National Registry Examination with special emphasis on pharmacology and regulatory issues. 2 lectures.

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491 Nuclear Medicine Registry Review (2) Preparation for National Registry Examination with special emphasis on pharmacology and regulatory issues. 2 lectures.
and diseases. Commercial use of containers, planters, adaptation, culture and landscape design uses interior plantscape. Management of the interior environment of basic ornamental trees, shrubs, and vines. Prereq: 8 AND LANDSCAPE DESIGN (740). ORNAMENTAL HORTICULTURE consent of instructor. Letter grade only.

493 Directed Study: Nutrition (1-3) Individual student: Senior standing, consent of instructor. May be repeated. Maximum 3 credits.

492 Field Experience: Nutrition (1-3) Prereq: Junior or instructor. May be repeated. Maximum 3 credits.


414 Nutrient-Drug Interactions (2) Nutrient effects on chemical, dietary, and pharmacological procedures, and instrumentation for analysis of food and disease and other critical care conditions. Prereq: 314.


385 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 through utilization of LANDCADD software. Prereq: 290, Agric. 280. 3 hours. F.


350 Basic Landscape Construction (3) Basic materials and handling; soil survey; lawns, vines, shrubs, and trees; landscape materials, wood, concrete and masonry construction and landscape grading. Prereq: 280 and 2 hours. 1 lab. F.

340 Practicum In Landscape Construction (3) Practicum experience in landscape development projects. Prerequisite and permission of instructor. May be repeated. Maximum 6 credits.

339 Plant Tissue Culture (3) (Same as Botany 451.) Physiology of growth and development of plants. Prereq: 350. F.

338 Introduction to Ornamental Horticulture (3) Survey of the field of ornamental horticulture. Prereq: 110 or consent of instructor.

335 Basic Landscape Planning: Identification, classification, adaptation, culture, landscape design, and maintenance of woody ornamental plants. Prereq: 280, 350, and 380. 8 hours biology electives or consent of instructor. F, Sp.


306 Special Topics: Horticulture (3) Individual student, consent of instructor. Letter grade only.

ORNAMENTAL HORTICULTURE AND LANDSCAPE DESIGN (740) Courses refer to specific courses in Ornamental Horticulture (3) Survey of the field of ornamental horticulture.

250 Basic Landscape Planning: Identification, classification, adaptation, culture, landscape design, and maintenance of woody ornamental plants. Prereq: 280, 350, and 380. 8 hours biology electives or consent of instructor. F, Sp.

255 Advanced Turfgrass Management (4) Principles and scientific basis of turfgrass culture, adaptation, ecology, physiology, soil fertility, and grass nutrition; current research and industry trends in pest and disease control; turfgrass species for Kentucky, Ohio, and Indiana; turfgrass use; 2 hours and 2 labs. F.

240 Integrated Pest Management (3) General principles and techniques of integrated pest management; theory, practical implementation, and economic analysis. Prereq: 110 or consent of instructor. 3 hours and 1 lab.

230 Material-Pathology (3) Fundamentals of Landscape Design (3) History of landscape design as it relates to contemporary appli- cations. Awareness and sensitivity to the landscape basic graphic skills and design theory with an emphasis on residential landscape planning. Introduction to land- form, landscape materials, and planting design. Prereq: 110, 280, and 290. 4 hours or consent of instructor. 1 hour and 2 labs. F.

205 Plant Materials (2) Identification, classification and design. Prereq: basic ornamental plants and gardening. Prereq: 220 and 330. 1 hour. F.

204 Plant Propagation (2) Physiology, methodology, and environmental influences. Prereq: 110 and consent of instructor. 3 hours and 1 lab. F.

203 Turfgrass Management (3) Practical turfgrass management, cultivation, selection, identification, and es- tablishment. Basic applied territory management and management of equipment. Prereq: 220, consent of instructor. 2 hours and 1 lab. F.

202 Landscape Planning (4) Basic materials, principles and techniques. Prereq: 110, Plant and Soil Science 210 and 8 hours of consent of instructor. 2 hours and 1 lab. F.

195 Introduction to Landscape Design (3) Introduction to planning and operating basic landscape construction including interfacing with landscape contractors and specifications. Prereq: 280, 350 and 2 hours. 1 lab. F.

190 The Human Condition: Value and Reality (3) The meaning of life, the meaning of God, the nature of reality and values. Writing-emphasis course.

189 Modern Public Philosophy (3) Development of Kantian and Empiricist thought, Nineteenth Century and early Twentieth Century. Prereq: 110. May be taken before 110. Writing-emphasis course.

188 The Information Age (3) Transition from the early Twentieth Century to the development of technology in the development of human knowledge. May be taken before 110. Writing-emphasis course.

186作文(3) A study of logical reasoning in natural language, designed to enhance skills in the use of language and critical thinking. May be taken before 110. Writing-emphasis course.

180 Basic Literature (3) A study of logical reasoning in natural language, designed to enhance skills in the use of language and critical thinking. May be taken before 110. Writing-emphasis course.

170 The Human Condition: Value and Reality (3) The meaning of life, the meaning of God, the nature of reality and values. Writing-emphasis course.

165 Modern Public Philosophy (3) Development of Kantian and Empiricist thought, Nineteenth Century and early Twentieth Century. Prereq: 110. May be taken before 110. Writing-emphasis course.

164 Critical Thinking (3) An introduction to practical reasoning concerning material propositions and the reasoning of everyday life. May be taken before 110. Writing-emphasis course.

150 Foundations of Western Thought: Antiquity through 1500 (3) Development of Rationalism, Empiricism, and Science through the Renaissance. May be taken before 110. Writing-emphasis course.

145 Introduction to Ornamental Horticulture (3) Survey of the field of ornamental horticulture. Prereq: 110 or consent of instructor. Letter grade only.
342 Nineteenth-and Twentieth-Century Philosophy (3) Writing-emphasis course.

349 War and Morality (3) Moral justification for war. Questions include: When is war justifiable? Is it ever necessary? What is the role of ethics in war? What are the legal and moral constraints in war (jus in bello)?

400 Contemplative Attention and Ethics in Healthcare (3) Exploration of ethical issues in healthcare delivery and the doctor-patient relationship. (Same as HPSS 400.) Writing-emphasis course.

435 Intermediate Formal Logic (3) Metatheory of formal logic and philosophy of logic. Prereq: 336 or consent of instructor.

440 Contemporary Ethical Theory (3) Topics in meta-ethics and ethics. Prereq: 240 or 249 or consent of instructor. (Same as Religious Studies 446.)

473 Philosophy of Mind (3) Problems of mind and body in relation to consciousness and personal identity. Prereq: 8 hours of philosophy or consent of instructor.

479 Studies in Recent Continental Philosophy (3) Selected thinkers or issues from areas such as Existentialism, Phenomenology, Hermeneutics, Strucuturalism, Post-Structuralism. Prereq: 8 hours of philosophy or consent of institutional verification. May be repeated. Maximum 8 hours.

491 Foreign Study (1–15)

493 Independent Study (1–14)

PHYSICAL EDUCATION ACTIVITY PROGRAM (764)

The following courses may not be repeated:

200 Special Topics (1–2) When content varies, may be repeated. Maximum 6 hours.

202 Badminton (1)

203 Elementary Ballet I (2)

204 Elementary Ballet II (2)

205 Basketball (1)

206 Bowling (1)

210 Folk and Square Dance I (2)

211 Golf (1)

212 Handball (1)

213 Ice Skating (1) Satisfactory/No Credit grading only.

216 Martial Arts: Special Topics (2)

220 Pickleball (1)

221 Personal Safety and Self-Defense (1) Satisfactory/No Credit grading only.

225 Physical Fitness: Conditioning (1)

226 Exercise and Weight Control (1)

229 Physical Fitness: Jogging (1)

230 Physical Fitness: Swimming (1)

231 Physical Fitness: Walking (1)

232 Racquetball 1 (1)

233 Racquetball 2 (1)

234 Soccer (1)

235 Social Dance (2)

236 Softball (1)

237 Hiking and Backpacking (1)

240 Intermediate Swimming (1)

241 Emergency Water Safety (1)

244 Tennis I (2)

245 Tennis II (2)

246 Track and Field (1)

249 Tumbling I (1)

250 Tumbling II (1)

251 Volleyball (1)

252 Weight Training (1)

254 Yoga and Relaxation (1)

255 Water Safety Instructor (2)

256 Lifeguarding (2)

258 Snow Skating (1) Satisfactory/No Credit grading only.

260 Western Dance (1)

261 Scuba Diving (1)

275 Fitness for Life II (2) Same as HPSS 276

PHYSICS (773)

101-102 How Things Work (3,3) For students with majors outside science. Examines familiar objects of everyday experience and sets in an understandable context of the physical principles that make them work. No prerequisites.

135-136 Introduction to Physics for Physical Science and Mathematics Majors in 4.5-4.5 core course in Calculus based physics. Satisfies prerequisites for 200 level and above. Attention to honours physics 135-136 for physics majors. Coreq: Mathematics 141-142. 3 hours lecture, 2 hours lab.

137-138 Honors Fundamentals of Physics for Physics Majors (4,4) For physics and engineering physics majors and qualified students from other majors. Coreq: Mathematics 141-142.

131 Elements of Physics for Architects and Interior Design Students (2) Course in physics for architecture and interior design students. Course emphasizes material development, light and structure, demonstration. Prereq: Intermediate Algebra and one year of geometry.

181 Physics of Music (3) Production, transmission, and perception of sound waves. Frequency, intensity, tone. Basic acoustics of instruments and voice. 3 hours lectures and demonstration.

231-232 Elements of Physics (4,4) (Basic) Physical principles and applications required in premed, dental, law, pharmacology and related students. 231: Physical properties of matter. 232: Kinetics and thermodynamics, modern physics. Must be taken in sequence. 5 hours lecture, 2 hours lab. Prereq: Physics 121-122, Calculus.

237 Fundamentals of Physics: Electricity and Magnetism (3,3) For engineers and Arts and Science majors requiring physics with calculus. Required of all engineering students. Prereq: Basic Engineering 101-102, Calculus. 3 hours lecture, 2 hours lab. Prereq: Mathematics 130 or Calculus.

238 Fundamentals of Physics: Wave Motion, Optics, and Thermodynamics (4,4) Physics principles and applications of atomic, nuclear, particle and condensed matter physics. Basic wave phenomena. 5 hours lecture, 3 hours lab.

239 Fundamentals of Modern Physics: Quantum Mechanics and Quantum Field Theory (3,3) Exposition of quantum mechanics and quantum field theory with applications to atomic, nuclear, and particle physics. 4 hours lecture, 2 hours lab. Prereq: Physics 238 or Calculus.

239 Fundamentals of Modern Physics: Quantum Mechanics and Quantum Field Theory (3,3) Exposition of quantum mechanics and quantum field theory with applications to atomic, nuclear, and particle physics. 4 hours lecture, 2 hours lab.

241 Introduction to Nuclear Physics (3) An introduction to the theoretical nuclear physics with emphasis on applied aspects. Prerequisite: Nuclear Engineering major. Prereq: Mathematics 241.


245-246 Electronics Laboratory (3,3) Electronic devices and instrumentation, introduction to the physics of electronic devices and circuits, basic measuring techniques, and applications to electronic devices. 5 hours lecture, 3 hours lab. Prereq: 239.

251 Application of Physics and Mathematics in Science, Engineering, and Medicine (3,3) Theoretical and experimental physics and mathematics and their application to atomic, nuclear, particle and condensed matter physics. 5 hours lecture, 3 hours lab.
210 Introduction to Soil Science (3) Differences in soils: soil genetic, physiologic, chemical, and biological properties of soil relations of soil to land use and pollution; soil management relative to erosion, weather, rotation, supply, cropping, fertility and field nutrition. Prereq: One semester chemistry, 2 hours lecture and 1 lab. Lab, F, S.

220 Introduction to Crop Science and World Crops (3) An introduction for students with no background in agriculture as a field of study. Focus on the cultivation, economic importance and basic agricultural systems of important food and fiber crops. Prereq: Pre其中之一 435, 130 or 132 and 232 and consent of instructor. 3 hours lecture, 3 hours lab.

230 Crop Science (3) Crop science for students in the natural sciences. Plant growth, development, and environment. The effect of the environment on the growth, development, and yield of plants. The effects of agriculture and land use on plant growth, development, and yield. Prereq: One semester of chemistry. 3 hours lecture and 2 hours lab. S, F.

231 Soil and Water Conservation (3) Hydrologic, agronomic, and soil science principles as applied to soil and water conservation. Prereq: Consent of instructor. May be repeated with consent of instructor. 6 hours

300 Introduction to Political Philosophy (3) An introduction to the concepts, questions and problems in political philosophy. Optional: 300-level prerequisite for any course in Political Science. Prereq: Consent of instructor. 3 hours lecture and 1 lab. S, F.

301 Soil Science (3) In-depth examination of fundamental soil properties and their applications to agricultural and environmental systems. The effects of agriculture and land use on plant growth, development, and yield. Prereq: 210 and Chemistry 130 or equivalent. 2 hours lecture and 1 lab. F, Sp.

310 Introduction to Soil and Water Management (3) Principles of soil and water management as it relates to agricultural and environmental systems. Prereq: 210 and 130 or 132. 3 hours lecture and 2 hours lab. S, F.

311 Soil Nutrient Management and Fertilizers (3) Principles of soil nutrient management as it relates to soil and water conservation. Prereq: 210 and 130 or 132. 3 hours lecture and 2 hours lab. S, F.

312 Soil and Water Conservation (3) Hydrologic, agronomic, and soil science principles as applied to soil and water conservation. Prereq: Consent of instructor. May be repeated with consent of instructor. 6 hours

320 Crop Science (3) Crop science for students in the natural sciences. Plant growth, development, and environment. The effect of the environment on the growth, development, and yield of plants. The effects of agriculture and land use on plant growth, development, and yield. Prereq: One semester of chemistry. 3 hours lecture and 2 hours lab. S, F.

334 Weed Management (3) Principles of weed interference, integrated management, herbicideselectivity and behavior, specific recommendations for various crop and non-crop situations. Prereq: 210 and 2 hours lecture and 2 hours lab. S, F.

353 Biodiversity, Germplasm Conservation and Plant Improvement (3) An introduction to the concepts, questions and problems in political philosophy. Optional: 300-level prerequisite for any course in Political Science. Prereq: Consent of instructor. 3 hours lecture and 1 lab. S, F.

330 Principles of Crop Science (3) Principles of crop science as it relates to agricultural and environmental systems. Prereq: 210 and 130 or 132. 3 hours lecture and 2 hours lab. S, F.

374 Weed Management (3) Principles of weed interference, integrated management, herbicideselectivity and behavior, specific recommendations for various crop and non-crop situations. Prereq: 210 and 2 hours lecture and 2 hours lab. S, F.

392 Practicum (2-4) Working with agricultural, environmental or natural resource-related enterprises in area of student's career interest. May not be used as 300-level prerequisite for any course in Plant and Soil Science. Prereq: Consent of advisor and faculty committee. E, F.

321 Physiology and Ecology in Agroecosystems (3) Plant physiology and ecology applied to crop production and management. Emphasis on crop growth, development, reproduction, and the interactions of crops with the environment. Prereq: 330. 2 hours lecture and one 2-hour lab. F.

381 Soil Land and the Environment (3) Soil as an environmental component and soil properties affecting land use. Soil as a resource in development planning including nonmining aspects of site selection for industry and land use planning. Prereq: One semester chemistry. 2 hours lecture and 1 lab. F, S.

500 Principles of Plant Breeding (3) Principles of plant breeding as it relates to agricultural and environmental systems. Prereq: 353, 471, and Biology 240. 2 hours lecture and one 2-hour lab. S, F.

491 Seminar (1) Topics of current interest may be discussed with consent of instructor. 6 maximum hours.

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.
nature, politics, the state, civic obligations and rights, freedom and democracy.

31 Contemporary Issues in American Public Policy (3) Selections from recent books addressing the nature, politics, the state, civic obligations and rights, freedom and democracy. Prerequisites: consent of the instructor; and one course in American Studies or Political Science.

32 Popular Culture and American Politics (5) Popular culture focusing on the film, television, books, music, and art that influence public opinion and policies, and options for the future. Writing-intensive course.

33 Urban Politics and Process (5) Development of public policy and policy-making in the American city. (Same as Latin American Studies 330.)

34 Tennessee Government and Politics (5) Major elements in Tennessee government and politics. Prerequisites: consent of the instructor; and one course in American Studies.

35 Law in American Society (3) Law as a process through which social problems are addressed in the United States. Topics include: case law, legislation, and administrative regulation. Writing-intensive course.

36 Judicial Process (3) Courts as components of political systems and public policy formation through judicial decision making.

37 Introduction to Public Administration and Public Policy (3) Public decisions, their organization, personnel, and financial management and administrative responsibility. Writing-emphasis course.

38 Public Policy and Politics in the Fifty States: Elements in Tennessee Government and Politics. (Same as American Studies 315-316.)

39 Political Change in Developing Areas (3) Characteristics, bases, and interrelationships of developing areas. Topics include: economic growth, international trade, development of political institutions, and governmental structure in Russia and Eastern Europe. (Same as Latin American Studies 330-331.)

40 Legal Writing (3) Legal principles, legal reasoning, and the writing of legal documents. Prerequisites: consent of the instructor; and one course in American Studies.

41 Congress (3) Nature, functions, and processes of the United States Congress. (Same as American Studies 412.)

42 The State, the Individual, and the Society (3) The state and society. A comparative study of different political systems, and emphasis on free enterprise and individual liberty. Prerequisites: consent of the instructor.

43 United Nations and International Law (3) Sources of regulatory authority, and constitutional provisions. Writing-intensive course.

44 United States Constitutional Law: Civil Rights and Liberties (3) Current issues in civil rights and liberties: First Amendment freedoms, equal protection, privacy, and the rights of the accused. (Same as Latin American Studies 321 and Cinema Studies 322.)

45 Constitutional Policy Analysis (3) Fiscal planning, budgetary procedures, government, their policy and administrative implications. Writing-intensive course.

46 Administrative Law (3) Legal dimensions of administrative action, power and procedures, and constitutional controls over administrators.

47 Black American Politics (3) Recent evolution and current public performance of the African American population. (Same as American Studies 341.)

48 Government and Politics of China and Japan (3) Political structure and public policy in China and Japan. Writing-emphasis course.

49 Government and Politics of Russia and Eastern Europe (3) System transition, political processes and governmental structure in Russia and Eastern Europe. (Same as Latin American Studies 337-338.)

50 Policy Making in Decommodores (3) Comparative approach to theory and processes of making public policy.

51 Contemporary Middle East Politics (3) Governments and movements in the Middle East: their characteristics, bases, and interrelationships.

52 African Politics (3) Trends and processes of government in the African continent. Writing-emphasis course.

53 Normative Issues in International Relations (3) An introduction to the major categories of international relations: Interests and decision-making processes, human rights, environmental degradation, and international organizations. Writing-intensive course.

54 Ancient and Medieval Political Thought (3) Major themes and ideas in American political thought, political science, and international organization. Writing-emphasis course.

55 United States Foreign Policy Process (3) Processes involved in the making, adoption, and implementation, focusing on interaction with federal and state/provincial governments, and the role of Congress in the formulation and implementation of United States foreign policy. Writing-intensive course.

56 A Senior Honors Thesis and Seminar (3,3) Career-related experiences in the student's major field. Topics: (business, politics, economics, religion, art, etc.) and formal writing projects at an advanced level. Prerequisites: 390 or the equivalent.

57 The Literature and Language of the Portuguese-speaking World (3) Contributing works of fiction and culture from the countries where Portuguese is spoken. Topics: May vary. May be repeated. Maximum 12 hours. (Same as Latin American Studies 431-432.)

58 Independent Study (1-15) Career-related experiences in the student's major field. Topics: (business, politics, economics, religion, art, etc.) and formal writing projects at an advanced level. Prerequisites: 390 or the equivalent. (Same as Latin American Studies 431-432.)

59 Internship (1-15) Internship.

60 Portuguese for Speakers of Another Romance Language (3) Knowledgeable diet of Portuguese with a strong background in another Romance language. Introduction to grammar, reading, writing, culture and the national language of Portugal. May be repeated. Maximum 12 hours. (Same as Latin American Studies 490-491.)

61 Internship (1-15) Internship.

62 Independent Study (1-15) Independent Study.

63 Psychological Studies (825) 210 Psychological issues in human development and application of psychological principles to educational settings. Prerequisites: consent of the instructor; and one course in American Studies.

64 Learning Skills and Study Systems (3) Approaches for increasing academic performance through effective study techniques, learning strategies, and understanding of personal learning styles.

65 Special Topics (1-3) Instructor initiated course on an approved topic. Prerequisites: consent of the instructor; and one course in American Studies.

66 Introduction to Psychology (3) Psychology: An introduction to the study of human behavior and its implications for everyday life. Writing-intensive course.

67 General Psychology (3) Introduction to the scientific study of human behavior and the implications for everyday life. Writing-intensive course.

68 Human Development and Behavior (3) An introduction to the study of human behavior and the implications for everyday life. Writing-intensive course.

69 Personality Development and Behavior (3) An introduction to the study of human behavior and the implications for everyday life. Writing-intensive course.

70 Social Psychology (3) An introduction to the study of human behavior and the implications for everyday life. Writing-intensive course.


72 Developmental Psychology (3) An introduction to the study of human behavior and the implications for everyday life. Writing-intensive course.

73 Psychological Assessment (3) An introduction to the study of human behavior and the implications for everyday life. Writing-intensive course.

74 American Psychological Political Thought (3) Major themes and ideas in American political thought, political science, and international organization. Writing-intensive course.

75 Ancient and Medieval Political Thought (3) Major themes and ideas in American political thought, political science, and international organization. Writing-intensive course.

76 United States Foreign Policy Process (3) Processes involved in the making, adoption, and implementation, focusing on interaction with federal and state/provincial governments, and the role of Congress in the formulation and implementation of United States foreign policy. Writing-intensive course.

77-78 Senior Honors Thesis and Seminar (3,3) Career-related experiences in the student's major field. Topics: May vary. May be repeated. Maximum 12 hours.

79-80 College Study (3) College Study.

81-82 College Study (3) College Study.

83 Irene Honors Thesis and Seminar (3,3) Required of honors majors; admission with consent of department.

84 Political Analysis (3) Nature, character, and function of research design, data collection, and statistical techniques. Prerequisites: consent of the instructor.

85 Special Topics in Political Science (3) May be repeated with consent of department. Maximum 12 hours.


88 Political Behavior and Process (3) Systematic description of behavior and processes of political behavior. (Same as American Studies 480.)

89 Political Attitudes and Behavior (3) Systematic description of behavior and processes of political behavior. (Same as American Studies 480.)

90 Political Power and Restraint (3) Judicial review, constitutional powers of the President and Congress. Federalism.

91 Portuguese Language and World Business (3) The course will examine the importance of the portuguese language in the world business community. (Same as Latin American Studies 490.)

92 Portuguese for Speakers of Another Romance Language (3) Knowledgeable diet of Portuguese with a strong background in another Romance language. Introduction to grammar, reading, writing, culture and the national language of Portugal. May be repeated. Maximum 12 hours. (Same as Latin American Studies 490-491.)
252 American Sign Language I (3) Expressive and receptive skill development using sign language. Class consists of total communication in American Sign Language. Prerequisite: Consent of instructor.

253 American Sign Language II (3) Expressive and receptive skill development in American Sign Language. Video

232 Varieties of Religious Community (3) How different types of social communities (churches, synagogues, mosques, monastic orders, denominations, families, etc.) have sought to reject, reinforce, transform, ignore, or dominate cultural and social systems. Prerequisite: Consent of instructor.

311 Ancient Hebrew Religious Traditions (3) Biblical history, political history, and cultural history. Prerequisites: Consent of instructor.

312 Modern Religious Thought (3) Major themes, issues, and thinkers of nineteenth and twentieth centuries. Prerequisites: Consent of instructor.

313 Religious Aspects of Modern Literature (3) Issues and thinkers of nineteenth and twentieth centuries, with emphasis on literature of specific periods. Prerequisites: Consent of instructor.

314 Aural Habilitation/Rehabilitation of the Hearing Impaired (3) Methods of providing aural rehabilitation for the hearing impaired. Prerequisites: Consent of instructor.

315 Speech and Language Services in the Schools (3) Organization and implementation of speech and language services. Emphasis on assessment, case-selection, and programming for children age 4-21. Prerequisites: Consent of instructor.

316 Clinical Practice in Communication Disorders in Schools (3) Supervised practice with children with communication disorders. Prerequisites: Consent of instructor. Consent of instructor required.

317 Introduction to Dental Hygiene (3) An overview of dental hygiene and its historical development. Prerequisites: Consent of instructor.

431-432 American Sign Language III and IV (3,3) Further development of receptive and expressive sign language skills. Using language in context is emphasized. Prerequisites: Consent of instructor.

433, 434 American Sign Language III and IV (80-100 clinical contact hours) Supervised practicum with children with hearing impairments. Prerequisites: Consent of instructor.

494 Aural Habilitation/Rehabilitation of the Hearing Impaired (3) Methods of providing aural rehabilitation for the hearing impaired. Prerequisites: Consent of instructor.

495 Aural Habilitation/Rehabilitation of the Hearing Impaired (3) Methods of providing aural rehabilitation for the hearing impaired. Prerequisites: Consent of instructor.

499 Directed Independent Study (1-6) Supervised practicum or research project. Prerequisites: Consent of instructor. Superimposed on the cultural milieu which gave birth to each. Prerequisites: Consent of instructor. Consent of instructor required.

319 Ethnography of Religious and Social Institutions (3) The psychology, social adjustment, communication methods, and influence of religious practices upon the development of human societies. Prerequisites: Consent of instructor.

320 Culture and Social Change (3) The study of cultural change and the role of religious institutions in this process. Prerequisites: Consent of instructor.

321 Theory of Communication I and II (3,3) An introduction to the psychology of communication. Prerequisites: Consent of instructor.

322 Theories of Communication I and II (3,3) An introduction to the psychology of communication. Prerequisites: Consent of instructor.

323 Indian Myth, Symbol, and Ritual (3) Distinctive elements of religious expression and analysis of their influence on traditional and contemporary social and cultural functions in religions.

398 Phonetics of American Sign Language (3) The phonetic structure and development of American Sign Language. Prerequisites: Consent of instructor.

482 Speech and Language Services in the Schools (3) Supervised practicum with children with hearing impairments. Prerequisites: Consent of instructor.

483, 484 Speech and Language Services in the Schools (80-100 clinical contact hours) Supervised practicum with children with hearing impairments. Prerequisites: Consent of instructor.

493 Directed Independent Studies (1-6) Supervised practicum or research project. Prerequisites: Consent of instructor.
Courses of Instruction

329-330 Intermediate Classical Hebrew (3-3) Reading in narrative material from the Hebrew Bible: 329: Genesis, Joshua, Judges, Samuel. Prereq: 229 or consent of instructor.

325 Islam in the Modern World (3) Beginning with the Mamluk rebellion of 1258 until modern times, with emphasis on the role of Islam in the development of modern nations and the contemporary Islamic world. Writing emphasis course. (Same as Asian Studies 325.)

324 Religious Ethics (3) Selects ethical theories and models from religious communities and thinkers, and applies them to interreligious issues, ethical questions, and personal and social problems.

345 Professional Responsibility (3) Same as Philosophy 345.

500 Medical Ethics (3) Same as Philosophy 345.

310 Introduction to Religion in the United States (3) A historical and sociological examination of religion in the United States: the growth of religion, major religious and non-religious organizations, and contemporary social issues. Writing emphasis course. (Same as American Studies 310.)

323 Religion and Cultures in the United States (3) Selects religion, movements, and processes in American religious life, thought, and culture from the colonial period to Modern American society. Writing emphasis course. (Same as American Studies 323.)

327 Philosophy of Religion (3) Same as Philosophy 327.

326 Buddhist Philosophies and Religion in India (3) Introduction to the major philosophical and religious traditions of India, including the development of Hinduism, Buddhism, and Jainism. Writing emphasis course. (Same as Asian Studies 326.)

315 Biblical and Jewish Literature in Focus (3) Survey of the origin of Judaism in India and its development through China, Korea, Japan, the countries of Southeast Asia, and beyond. Writing emphasis course. (Same as Philosophy 315.)

329-330 Intermediate Classical Hebrew (3-3) Reading in narrative material from the Hebrew Bible: 329: Genesis, Joshua, Judges, Samuel. Prereq: 229 or consent of instructor.

368 Philosophy of the Holocaust (3) Historical interpretation of the moral and ethical dimension of the Holocaust and its implications for modern Jewish life. Writing emphasis course. (Same as Judaic Studies 368.)

369 Literature of the English Bible (2) Same as English 369.

314 Religion and Philosophy in China (3) Traditional thought and religion of China in its cultural setting as an essential part of East Asian philosophy. Writing emphasis course. (Same as Philosophy 314.)

328 Religion and Literature in Focus: The development of the major modern philosophical themes of philosophy and religious thought in India. (Same as Philosophy 328.) Writing emphasis course.

332 Classical Islam (3) Content limited to events prior to 1773 CE, focusing on the Qur'an, the Prophetic Tradition, Islamic law, Sunnism, and Sufism. Writing emphasis course. (Same as Asian Studies 332.)

342 Religious Ethics (3) Selects ethical theories and models from religious communities and thinkers, and applies them to interreligious issues, ethical questions, and personal and social problems.

326 Buddhist Philosophy and Religion (3) Survey of the development of Buddhism in India and its further development of Buddhism in China, Korea, Japan, and the countries of Southeast Asia, and beyond. Writing emphasis course. (Same as Philosophy 326.)

338 Elements of Anthropology (3) Introduction to the anthropological study of religion. Prereq: Consent of instructor. Advanced students in Religious Studies: required for all majors. May be repeated. Maximum 6 hours.

493 Independent Study (1-3) Individual problems for junior and senior students with special interest in retail and consumer sciences. Prereq: Junior or Senior standing and consent of the instructor.

480 Technological and Community Change (3) Analysis of the effects of changes in technology and industry upon the urban community and the consumer. Writing emphasis. May be repeated. Maximum 6 hours. (Same as Judaic Studies 480.)

360 Views of the Holocaust (3) Historical interpretation of the moral and ethical dimension of the Holocaust and its implications for modern Jewish life. Writing emphasis course. (Same as Judaic Studies 360.)

315 Biblical and Jewish Literature in Focus (3) Survey of the origin of Judaism in India and its development through China, Korea, Japan, the countries of Southeast Asia, and beyond. Writing emphasis course. (Same as Philosophy 315.)

342 Religious Ethics (3) Selects ethical theories and models from religious communities and thinkers, and applies them to interreligious issues, ethical questions, and personal and social problems.

326 Buddhist Philosophy and Religion (3) Survey of the development of Buddhism in India and its further development of Buddhism in China, Korea, Japan, and the countries of Southeast Asia, and beyond. Writing emphasis course. (Same as Philosophy 326.)

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400 Directed Independent Study (1-3) Individual and East European Studies 451-452. Content varies, may be repeated for credit. Writing emphasis course.

430 Selected Topics in Russian Literature (3) When translation. Writing-emphasis course.


199 Russian Language and World Business (3) This course will examine the importance of business trips of the local state, and national business teams of interdisciplinary teams of faculty from the colleges of Business and Arts and Sciences will promote an interest in the value of language study and international cultural awareness in world business. Restricted to students majoring in English and World Business program. See the Director for further information.

201-202 Intermediate Russian (4,4) Must be taken in sequence.

220 Interpersonal Communication (3) Same as Speech Communication 220.

220 Interpersonal Communication Process (3) (Same as Speech Communication 220.)

110 Social Problems and Social Change (3) General concepts and theories. A study of social change. Basic concepts of social change, social movement, and decision-making. Prereq: Consent of instructor.

230 Comparative Methods of Social Research (3) Comparative methods of social research. Prereq: Consent of instructor.
111-112 Elementory Spanish (3,3) Language laboratory required. Must be taken in sequence. Prereq: students eligible for Spanish 100.

195 Intermediate Spanish Transition (3) This course is designed to prepare students for enrollment in Spanish 211. Prereq: Spanish placement score at the level for placement in Spanish 211. This class will review grammar, vocabulary, and cultural content for Spanish major. Prereq: students will have 100-level Spanish course and therefore will follow the six hour of elementary Spanish language credit awarded through placement examination. For elective credit only. F, S.

196 Spanish Language and World Business (3) The course will examine the importance of foreign trade at the local, national, and international level. An interdisciplinary team of faculty from the Colleges of Business and Arts and Sciences will provide an overview of the role of commerce in the global marketplace. Required of all majors. Prereq: students will have 100-level Spanish course and therefore will follow the six hour of elementary Spanish language credit awarded through placement examination. For elective credit only. F, S.

211-212 Intermediate Spanish (3,3) Students who place in 100-level course from high school will receive 6 hours of elementary Spanish language credit. Prereq: 111 or 112. E, Sp.

291 Spanish Literature in English Translation (3) From the Golden Age, Don Quixote, the picaresque novel, and St. John of the Cross, to the modern, Unamuno, Lorca, Ortega, and Casals. No foreign language or major credit. Writing emphasis course.

301 Spanish for Students of Other Romance Languages (3) Accelerated class for beginning students of Spanish and other Romance languages. Prereq: 212 or equivalent. This course is open to students eligible for Spanish 150. Pacific credit awarded through placement examination. For elective credit only. F, S.

305-310 Special Topics (3,3) 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.

324 Intermediate Conversation (3) Develops speaking skills through conversations on all topics. Prereq: 212 or equivalent. Writing emphasis course.

323 Intermediate Composition and Grammar (3) Develops writing skill through compositions on assigned topics. Prereq: 212 or equivalent. Writing emphasis course.

335 Aspects of Spanish Literature (3) Introduction to Spanish literature, using selections from prose, drama, and poetry of the medieval, Golden Age and modern periods. Required of all majors. Prereq: 212 or equivalent.

336 Aspects of Spanish American Literature (3) Same as Latin American Studies 336. Prereq: 212 or equivalent.

340-456 Conversation and Comprehension in Spanish (3,3) Developmental course to enhance listening, speaking, reading, and writing. The course work will be conducted in Spanish. Prereq: 212 or equivalent. Writing emphasis course.

355 Cultural and Institutional Changes in Latin America (5) Values systems, Behavioral patterns, Religious beliefs, role of the family, the church, education, and politics. Prereq: 212 or equivalent. Writing emphasis course.

380 Latin American Films and Culture (3) Latin America's film industry as a window on Latin America's society and culture. The course is designed to give students an understanding of Latin America's culture and society. Prereq: 212 or equivalent. Writing emphasis course.

381 Latin American Civilization (3) Latin America's cultural and social history and the political institutions that have shaped it. Prereq: 212 or equivalent. Writing emphasis course.
SPEECH COMMUNICATION (943)
100 Introduction to Speech Communication (3) Fundamental theories and practices with particular reference to interpersonal, intergroup, group, organizational, and public communication.
107 Honors: Introduction to Speech Communication (3) Analysis and exploration of the fundamental theories and practices of speech communication. Admission by consent of the department.
190 Public Speaking (3) Preparation and delivery of informative and persuasive speeches. Topics include research, organization, delivery, audience, style, service, and evaluation of others.
200 Interpersonal Communication (3) Process by which individuals influence social behaviors and are affected by social norms and expectations. Topics may include listening, nonverbal communication, small group communication, and selected others.
210 Listening (3) Study of the principles and techniques of listening. Focuses on theoretical and practical listening skills.
220 Interpersonal Communication (3) Process by which individuals influence social behaviors and are affected by social norms and expectations. Topics may include listening, nonverbal communication, small group communication, and selected others.
230 Advanced Oral Interpretation (3) Individual and group presentations of prose literature and poetry. Prereq: Consent of instructor.
240 Argumentation and Debate (3) Reasoned decision-making through competitive and collaborative speech. Practice and application of various oral communication skills. May be repeated for credit.
250 Decisional Proseminar (1) Development of individual research topics in consultation with the instructor. May be repeated for credit.
260 Communication and Society (3) Study of communication processes, patterns, and problems. Prereq: Consent of instructor.
270 Argumentation and Debate (3) Reasoned decision-making through competitive and collaborative speech. Practice and application of various oral communication skills. May be repeated for credit.
280 Intermediate Rhetoric (3) Historical and critical study of Rhetoric in the United States, World War I to the 1940s topresent. (Same as Women's Studies 476.)
290 Rhetoric of the Contemporary Feminist Movement (3) Historical and critical study of Rhetoric in the United States, World War I to the 1940s topresent. (Same as Women's Studies 476.)
300 Advanced Public Speaking (3) Theory and practice through experience with assigned topics of public speaking. Prereq: Consent of instructor.
310 Practicum I (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
312 Coaching of Basketball (1) Individual and team fundamentals for the high school coach: conditioning, schedule making, and other business arrangements. Prereq: Consent of instructor.
315 Practicum II (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
319 Coaching of Baseball/Softball (1) Individual and team fundamentals for the high school coach: conditioning, schedule making, and other business arrangements. Prereq: Consent of instructor.
321 Practicum III (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
324 Practicum IV (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
330 Practicum V (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
331 Practicum VI (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
340 Practicum VII (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
345 Practicum VIII (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
350 Communication Theory (3) Historical and critical study of Rhetoric in the United States, World War I to the 1940s topresent. (Same as Women's Studies 476.)
355 Practicum IX (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
370 Practicum X (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
380 Practicum XI (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
390 Practicum XII (3) Supervised part-time experience at approved site for purpose of supporting and establishing career goals. Each hour of credit requires 40 hour days per semester. For Pre-Sport Management majors only. S/NC only. Prereq: Progression (admission) to major. Sport Management 100 or Recreation/Lesuire Studies 110 F, Sp.
452 Intermediate Sculpture (3) Materials, tech- 
niques and processes of basic sculptural design. 
Your instructor. 3 hours and 1 lab. Pre- 
vious consent of instructor. 4 hours of work required.

453 Advanced Sculpture (3) Advanced prob- 
lems in sculptural design and theory involving 
issues such as materiality, form, space, and interac- 
tive considerations. 3 hours of work required.

454 Computer Assisted Design for Sculpture (3) 
Advanced techniques in computer assisted design for 
sculpture with a CAD package. Prereq: Sculpture 201 or 240 or 
consent of instructor. 2 hours and 1 lab. Field work required.

460 Computer Graphics (3) An introduction to 
the computer graphics environment. Prereq: 
Instructor. 3 hours of work required.

481 The City (3) (Same as Sociology 363.) 
Discussion based and writing intensive. Intended for 
graduate honors students. Proposals must be approved 
in advance. See the Director of University Honors for further 
information. May be combined with 323. 3 hours of work required.

482 Urban Development and Finance (3) (Same as 
Finance 481.) Interdisciplinary approaches to selected topics for 
understanding urban processes. Writing emphasis. Intensive 
field work required. 3 hours of work required.

484 Planning (3) (Same as Sociology 323.) 
Interdisciplinary approaches to issues involving the 
urban setting. 3 hours of work required.
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