ART (140)
101 Studio Fundamentals: Drawing and Design (2) Introduction to basic drawing media, concepts and techniques and to the elements and principles of pictorial organization.
103 Studio Fundamentals: Three Dimensional Design (2) Projects designed with real space and three dimensional materials. Primarily for art, architecture, art education, and interior design and housing majors.
191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated, medium may not be repeated. Maximum 12 hours.
295 Intermediate Design and Color (3) Further exploration of basic techniques of two-dimensional design, with emphasis on color theory and technique. Prereq: 101, 103.
299 Special Topics (3) Student or instructor-initiated course offered at convenience of department. May be repeated. Maximum 12 hours.
300 Inter-area Portfolio Review (0) Review of prior studio work. Successful completion required prior to registration for junior and senior courses. Prereq: Art History 172 and 173 with a grade of C or better.
481 Museology I: Museums, Purpose and Function (3) Purposes, functions and development of museums of art, history, natural and applied science. (Same as Anthropology 481.)
482 Museology II: Exhibition Planning and Installation (3) Exhibition concept development and implementation. Exhibition design and installation techniques. Publicity, production, matting and framing, shipping and storage. Prereq: 481 or consent of instructor. (Same as Anthropology 482.)
483 Museology III: Field Projects (1-12) Special field projects including restoration, preservation, registration, and other related research on or off campus. Prereq: 481 and consent of instructor. May be repeated. Maximum 12 hours. (Same as Anthropology 484.)
491 Foreign Study (1-15)
492 Off-Campus Study (1-15)
493 Independent Study (1-15) Prereq: Consent of instructor.
494 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
495 Visiting Artist Seminar (2) Study and discussion of contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 6 hours.
499 Special Topics (3) Student or instructor-initiated course offered at convenience of department. May be repeated. Maximum 12 hours.
ART CERAMICS (135)
191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated, medium may not be repeated. Maximum 12 hours.
221 Ceramics: Handbuilding I (3) Introduction to handbuilding, glazing, clay preparation and firing. Prereq: 101 and 103.
222 Ceramics: Throwing I (3) Introduction to throwing, glazing, clay preparation and firing. Prereq: 101 and 103.
225 Portfolio Practicum - Handbuilding (3) Intense post-introductory studio experience to develop work for application to Ceramics Portfolio Review 320. Art majors only. Not repeatable for credit. Prereq: 221, 222, and consent of Department.
226 Portfolio Practicum - Throwing (3) Intense post-introductory studio experience to develop work for application to Ceramics Portfolio Review 320. Art majors only. Not repeatable for credit. Prereq: 221, 222, and consent of Department.
229 Ceramics: Special Topics (3) Student or instructor initiated course offered at convenience of department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
320 Ceramics: Portfolio Review (0) Review of prior work in ceramics. Successful completion required prior to registration for junior and senior courses. Prereq: Art 101 and 103, Art History 172 and 173. Art Ceramics 221, all with a grade of C or better. Coreq: Art 295 with a grade of C or better. Coreq: Art Ceramics 222. Satisfactory/No credit only.
321 Ceramics: Handbuilding II (3) Continued investigation of ceramic form with an emphasis on the development of individual ideas and expression. Prereq: 320.
322 Ceramics: Throwing II (3) Continued investigation of throwing with an emphasis on the development of individual ideas and expression. Prereq: 320.
422 Ceramics: Advanced Throwing (4) Continued, in depth investigation of ceramic form with an emphasis on the development of individual direction. Prereq: 321 and 322. May be repeated. Maximum 12 hours.
424 Ceramics: Clays and Glazes (3) Clay chemistry, clay bodies, glaze theory, and calculation. Formulating, mixing and testing of clay bodies and glaze formulas. Prereq: 320.
429 Ceramics: Special Topics (3) Student or instructor initiated courses offered to advantage of department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
493 Independent Study (1-15) Prereq: Consent of instructor.
494 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
495 Visiting Artist Seminar (2) Study and discussion of contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 6 hours.
499 Special Topics (3) Student or instructor-initiated course offered at convenience of department. May be repeated. Maximum 12 hours.
ART DESIGN/GRAPHIC (136)
151 Graphic Design History (3) Major movements and pivotal artists/designers and directions, 1850 to the present, and their impact on current graphic design trends. (Cannot be used to fulfill art history requirement.)
191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated, medium may not be repeated. Maximum 12 hours.
251 Beginning Graphic Design I (3) Introduction to the elements and principles of graphic design including typography and layout. Survey of graphic design tools, materials, and processes. May be repeated. Maximum 6 hours. Prereq: Art 101 and 103, Art Design/Graphic 151, all with a grade of C or better. Coreq: Art Design/Graphic 251. May be repeated. Maximum 6 hours.
254 Black and White Illustration (3) Black and white illustration and digital techniques as applied to product and editorial illustration. Prereq: 101.
256 Individual Projects in Graphic Design (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.
259 Special Topics: Graphic Design (3) Student or instructor initiated course offered at discretion of department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
301 Graphic Design Portfolio Review (0) Review of prior work in graphic design. Successful completion required prior to registration for junior and senior courses. Prereq: Art History 172 and 173 with a grade of C or better. Coreq: Art Design/Graphic 252. May be repeated. Satisfactory/No credit only.
352 Intermediate Graphic Design II (3) Investigation of sign, symbols, marks and identity systems. Prereq: Art Design/Graphic 351 with a grade of C or better.
354 Color Illustration (3) Flat and process color media and production techniques as applied to product and editorial illustration. Prereq: 254 and successful completion of any portfolio review.
356 Graphic Design Production (3) Traditional and computer-generated techniques for the production of print media. Introduction to computer systems, software and techniques.
396 Airbrush Painting (3) Techniques of airbrush painting; skills and creative applications emphasized. Prereq: 211.
405 Computer Enhanced Graphic Design (3) Exploration of new technologies and their significance to graphic design. Prereq: 254, 356 with a grade of C or better and consent of instructor. May be repeated. Maximum 6 hours.
444 Graphic Design Center Practicum (3) Practical work experience in a student-managed, on-site studio. Prereq: 356 and consent of instructor. May be repeated. Maximum 6 hours.
451 Advanced Graphic Design (3) Theory and techniques of visual problem-solving as applied to advanced applications of graphic design. Prereq: 352 with a grade of C or better.
452 Graphic Design Seminar (3) Discussion of design and professional issues including politics, economics, and ethics for the graphic designer. Culminates in a student-initiated project. Prereq: 451 with a grade of C or better.
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 for books, magazines, and newspapers. Prereq: 254 and successful completion of any portfolio review.
455 Graphic Design Professional Seminar (3) Professional practices including client relationships, design management and business practices. Assembly, organization and editing of the professional portfolio. Prereq: or Coreq: 452.
456 Graphic Design Practicum (3-12) Practical work experience in the graphic design field. Only by pre-arrangement with the department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
459 Special Topics in Graphic Design (3) Student or instructor initiated course offered at discretion of department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
493 Independent Study (1-15) Prereq: Consent of instructor.
494 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
495 Visiting Artist Seminar (2) Study and discussion of contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 8 hours.
ART DRAWING (137)
191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For Non-majors only. Courses may be repeated, medium may not be repeated. Maximum 12 hours.
212 Drawing II: Life Drawing (3) Development of drawing and observational skills with special emphasis on structure and dynamics of the human figure and of the figure in environment. Prereq: 211. May be repeated. Maximum 6 hours.
219 Special Topics in Drawing/Painting (3) Student or instructor-initiated course offered at convenience of department to enhance and expand the painting, drawing, and watercolor curriculum. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
311 Drawing III (4) Development of personal drawing techniques and concepts through class problems. Prereq: 212 and 312 or consent of instructor. May be repeated. Maximum 8 hours. Total of 8 hours required for students in the Drawing concentration.

312 Drawing Portfolio Review (0) Review of prior work in drawing. Successful completion required prior to registration for junior and senior courses. Prereq: Art History 172. DND 173. A grade of C or better. Satisfactory/No credit only.

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

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

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

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

495 Visiting Artist Seminar (2) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

152 Courses of Instruction

ART EDUCATION (141)

301 Foundation of Art Education (3) Basic philosophy and structure of the educational system in teaching activities in two and three dimensional design, art appreciation, and teaching methodology. F, Sp, Su

302 Multiculturalism in Visual Art (3) Selected cognitive and productive experiences involving multicultural visual art. Prereq: 301 and adm to Teacher Education Program. Sp

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

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

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

ART HISTORY (139)

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

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

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

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

178 Honors: Western Art II (3) Consent of Department required. Major monuments in the history of European and American Art from the Renaissance to the present. Study grounded in reading, writing, and discussion. Writing-emphasis course.

183 Asian Art (3) Selected works of painting, sculpture, architecture, and other forms in India, China, Japan, and to a lesser extent, Korea and Southeast Asia from antiquity through the 19th Century.

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

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

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

411 Art of South and Southeast Asia (3) A survey of the art and architecture of the Indian subcontinent and Southeast Asia from 2000 B.C. to the 20th Century. The topics to be examined will enable students to see art as a means to understand the religious, political, and social contexts of the environment in which it was produced.

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

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

425 Early Christian and Byzantine Art to 1350 (3) Art in the Mediterranean: From the origins of the Christian church to c. 1350. Mosaic and painting, sculpture, architecture, and ceramics. (Same as Medieval Studies 371 and Judasic Studies 425.)

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

441 Northern European Painting, 1350-1600 (3) From courtly art of late Middle Ages to Northern Renaissance. Jan van Eyck, Rogier of Earland, Durer; and Rembrandt. Writing-emphasis course.

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


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 Velazquez. Writing-emphasis course.

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

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

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

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

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

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

473 19th Century American Painting (3) From West and Copley to emergence of ‘The Eight.’ Writing-emphasis course.

474 Theory of 20th-Century Art in Europe and America (3) Addresses the theoretical basis for the modern movement. Emphasis on analyzing and discussing various dance, music, opera, and theatre works as an art form. Prereq: 172 and (or their Honors equivalents), or consent of instructor. Writing-emphasis course.


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

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

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


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

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

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

ART MEDIA ARTS (134)

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

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

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

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

239 Special Topics in Media Arts (3) Student or instructor-initiated course offered at convenience of department. May be repeated. Maximum 12 hours.
330 Media Arts Portfolio Review (0) Review of prior work in media arts. Successful completion required prior to registration for junior and senior courses. Prereq: Art History 172, with a grade of C or better. Satisfactory/No Credit only.

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


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

431 Photography III (3-6) Individual development of photographic problems and techniques. Prereq: 233 and 331. May be repeated. Maximum 12 hours.

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

435 Cinematography as Art (3) Continued development of concepts and techniques for the creation of films as an art form with an emphasis on individual projects. Prereq: Art History 172 and 173 with a grade of C or better. Satisfactory/No credit only.

436 Video Art (3) Continued development of concepts and techniques for the creation of video works as an art form with an emphasis on individual projects. Prereq: 233 and 330 or permission of instructor. May be repeated. Maximum 9 hours. (Same as Cinema Studies 436.)

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

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

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

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

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

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

ART PAINTING (138)

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

213 Painting I: Introduction (3) Capacities of oil and acrylic painting on canvas. Prereq: 101, 103 for art majors; determined by department. May be repeated. Maximum 6 hours.

214 Painting II (3) Techniques of expression in oil and/or acrylic. Prereq: Painting 213. May be repeated. Maximum 6 hours.


216 Watercolor II (3) Capacities of transparent watercolor, watercolor techniques, and watercolor technique. Prereq: determined by department. May be repeated. Maximum 6 hours.

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

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

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

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

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

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

415 Watercolor IV (6) Advanced painting with water-based media on paper stressing individual concepts and personal approaches. Prereq: 315. May be repeated. Maximum 12 hours. Total of 12 hours required for undergraduate students in the Watercolor concentration.

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

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

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

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

ART PRINTMAKING (132)

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

262 Intaglio I (3) Metal plate intaglio printing in traditional and contemporary techniques of etching, softground, drypoint, aquatint, and color methods. Prereq: 101. May be repeated. Maximum 6 hours. Total of 12 hours required for students in the Printmaking concentration.

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

264 Screen Printing I (3) Screen printing as a fine art medium. Successful completion required prior to registration for junior and senior courses. Prereq: 262 and 360 or consent of instructor. May be repeated. Maximum 8 hours.

265 Lithography II (3) Lithography and its role in printmaking. Successful completion required prior to registration for junior and senior courses. Prereq: 264 and 360 or consent of instructor. May be repeated. Maximum 8 hours.

362 Intaglio II (4) Exploration of concepts and techniques in intaglio printing including work from zinc, softground, drypoint, aquatint and color methods. Prereq: 262 and 360 or consent of instructor. May be repeated. Maximum 8 hours.

364 Lithography II (4) Exploration of concepts and techniques in lithography from stones, aluminum plates and photo-plates. Prereq: 264 and 360, or consent of instructor. May be repeated. Maximum 12 hours.

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

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

ART SCULPTURE (143)

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

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

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

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

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

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

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

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

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

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

345 Steel Sculpture II (3) Further exploration of concepts and techniques in steel casting. Prereq: 245 and 340 or consent of instructor.
ART ARROWMONT PI BETA PHI SCHOOL OF ARTS AND CRAFTS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ASIAN LANGUAGES (144)

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

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

199 Chinese and Japanese Language and World Business (2) Examines the importance of foreign trade at the local, state, and national levels. Interdisciplinary faculty from the Colleges of Business Administration and Arts and Sciences provide an overview of the value of language study and international cultural awareness in understanding global business and World Business. See Director for further information. F

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

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

311-312 Chinese Literature in English Translation (3,3) 311-Classical literature. 312-Vernacular and modern literature. Writing-emphasis course.


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

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

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

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

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

491 Chinese and Japanese Foreign Study (1-15)

ASIAN STUDIES (145)

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

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

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

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

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

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

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

322 Classical Islam (3) (Same as Religious Studies 322)

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

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

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

ASTRONOMY (150)

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

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

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

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

AUDIOLOGY AND SPEECH PATHOLOGY (160)

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

302 Audiotics and Perception (3) Basic audiotics. Introduction to psychoacoustics and speech perception.


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

306 Speech Science II: Anatomy and Physiology (3) Anatomy, physiology and embryological development of the speech production mechanism. Prerequisite: 305.

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

331 Articulation Disorders (3) Etiology, diagnosis, and treatment of articulatory defects. Prerequisite: 304, 305, or consent of instructor.

431 Stuttering (3) Nature, appraisal and treatment. Prerequisite: 304 or consent of instructor.
401 - 402 Biochemistry-Molecular Biology I, II (3, 3) A two-course sequence providing in-depth coverage of biochemistry and molecular biology, intended for Biology majors concentrating in BCMB, but also main track for Biology majors in other concentrations. First semester courses cover amino acid structure and chemistry, protein structure, protein folding, enzyme behavior and function, reaction mechanisms, catalysis and energy transfer, synthetic metabolism including photosynthesis, and protein transport. Second semester covers structure of DNA and RNA, experimental methods for analyzing nucleic acids, mechanisms of RNA and protein synthesis, mechanisms of DNA replication, repair and recombination, chromosome structure and function, regulation of gene expression, genome structure and genomics, and mechanisms of biological regulation. Prerequisites: Biochemistry 240, Chemistry 350-360 and 369.

403 Advanced Genetics Laboratory (2) Experiments illustrating methods in modern genetics, including techniques in classical, cytological and molecular and developmental genetics. Emphasis on current developments and their applications, societal and economical impacts, and the implications of genetic disease state. Prerequisite: As announced. May be repeated. Maximum 4 hours may apply toward BCMB major.

409 Perspectives in Biochemistry and Cellular and Molecular Biology (3) Current issues in biochemistry and cell biology and molecular biology. Emphasis on current developments and their applications, societal and economical impacts, and the implications of genetic disease state. Prerequisite: As announced. May be repeated. Maximum 4 hours may apply toward BCMB major.

410 Cellular and Comparative Biochemistry (4) Electrolyte behavior, chemistry and structure of proteins; enzyme behavior and biological function; catalysis and energy capture; synthetic metabolism; nucleic acid function; protein synthesis, and biochemistry and genetics; regulation of biological processes. Prerequisite: Biochemistry 350-360 and Biology 140-240. 3 hours and 1 discussion. Not offered for credit if credit has previously been received for BCMB 401. Credit, for electively, Krogh, Mitchell and Explorations of mammals.

411 Advanced Cellular Biology (3) Cellular structure and function at the molecular and supramolecular level. Topics include protein structure and function, membrane structure and function, signal transduction, cell cycle regulation, mitosis and the cell cycle, cytoskeleton and cell motility, cell-cell interactions and tissue interactions. Prerequisite: Biochemistry 240, Biology 140. F, Sp.

411 Foundations in Neurobiology (3) Basic nerve cell physiology, nervous system organization, sensory and motor systems, neural basis of behavior, and nervous system development and plasticity. Prerequisite or coreq: Physiology 221-222, Chemistry 120, 130, Biology 140. F, Sp.

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


420 Advanced Topics in BCMB (3) Selected Topics of current interest at an advanced level and open to control of protein function, immunohistochemistry, regulation of gene expression, bioenergetics, etc. Emphasis on historical and the literary and experimental basis of current knowledge. Historical background and societal impact, ethical and moral implications, and future development of technologies. Written reports required. Prerequisite: 410. Sp. Writing emphasis course.

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

429 Cell Biology Laboratory (3) A series of open-ended, discovery-based exercises will be developed to design and test new drugs using modern cell biology and computer technologies. Experimental modules include techniques used in cell isolation, purification, culturing, fluorescent microscopy, receptor binding and signal transduction, foods and drugs—use and misuse. 102 focuses on the diversity of the Earth’s biota and the interdependence among components. Topics include: surveys of biodiversity from bacteria to higher plants and animals, genetics and evolutionary processes, population biology, ecology, ecosystems, environmental issues including world population, and global climate change. Each course is 3 hours lecture, 1 hour discussion/laboratory. Laboratories involve a mix of skills-oriented exercises and assignments focused on topics. Although not required, it is strongly recommended that 101-102 be taken in sequence.
include: basic organic chemistry and biomolecules, cell structure—membranes, cell walls, and internal organelles; energetics—respiration and photosynthesis; cell division—mitosis and meiosis, safety laboratory procedures, stress basic laboratory skills and procedures such as measuring pipetting and mixing solutions, as well as introduction matching of compound classes such as electrophoresis and centrifugation. Prereq: 130, Chemistry 120; coreq: Chemistry 130.

202-203 Inside the Biological Sciences (1,1) Presentations by faculty and other biology professionals for an impromptu research forum that acquaints students with diverse nature and current applications of biology. Open to freshmen and sophomores. Satisfactory/No Credit only. May be repeated.

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

250 General Ecology (4) Relations between organisms and their environment, including human environmental problems. Topics include populations, communities, and ecosystems. 3 hours lecture, 1 hour discussion, 4 lab problems and 2 lab experiments. Students will attend major symposiums and write summaries of important articles. Prereq: Math 123 or 125 or Math 181 or Math 182 or consent of instructor. Satisfactory/No Credit only. May be repeated. F, Sp.

307-308 Honors Colloquy in Biological Research (1,1) Participation in colloquial biological thinking stimulating rewarding careers in different areas of biology. National and internationally recognized speakers invite each term. Open to sophomores, juniors and seniors; required of Threshold Biology Scholars. Prereq: 8 hours of 200 or above, admission to an honors program or permission of the instructor. Satisfactory/No Credit only. May be repeated. F, Sp.

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

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

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

BIOSYSTEMS ENGINEERING (196)

103 Introductory Design and Fabrication (1) Experiences with fundamental tools, machines and systems of biosystems engineering, through lab experiences, design competition, and field trips to production facilities. 2 hours lab. F

104 Design Apprenticeship (1) Exposure to design in biosystems engineering through apprenticeship with senior design teams in Biosystems Engineering 402. Apprentices will maintain a journal describing their activities in assisting the senior design engineers, and will make an oral presentation summarizing the design project with which they assisted. Grading will be based on journal submissions, the final presentation, and attendance. Prereq: 103. 2 hour lab. Sp.

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

243 Material and Energy Flows in Biological Systems (3) Introduction to Mass and energy balances, and enzyme and membrane function, through the study of plants, animals and microorganisms. Topics include: basic operational and environmental systems; process design; advanced control; process control; plant energy budgets; animal energy budgets and water production; mathematical descriptions of microbial growth; and chemical reaction processes. Emphasis on problem formulation, solving and reporting. Design content. Prereq: Engineering Fundamentals 101, 102, and Chemistry 120 and 130. Sp.

303 Transport Processes in Biological Systems (3) Design of equipment for the transport of materials and energy and mass transfer. Thermodynamics including psychrometrics, conduction and convection heat transfer, and mass transfer. Prereq: Nuclear Engineering 203 or Mechanical Engineering 331 or Biochemistry 471, Sp.

311 Processing Food and Biological Materials (3) Application of basic engineering sciences to processing and handling of biological materials; physiology, physical properties, thermal processing, drying, evaporation, refrigeration and freezing, membrane processes and extraction. Prereq: 303, Engineering Science 341 or Civil and Environmental Engineering 390. F.

315 Soil and Water Conservation (3) Hydrologic, agronomic, and engineering principles applied to resource management problems including flood and erosion control, drainage, and water quality. Prereq: Plant and Soil Sciences 210. 2 hours and 1 lab. (Same as Plant and Soil Sciences 315.) Sp.


401 Biosystems Engineering Design I (3) First course of a capstone design sequence. Review of fundamental engineering principles, time and project management, ethics, contemporary issues in biosystems engineering, portfolio review, and design proposal generation. Design proposals will include extensive documentation and preliminary analyses. Prerequisite: 451 and senior standing or consent of instructor. Corequisite: 403 or 423 or 430 or 433. F.

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

403 Machine and Component Design (3) Nature of design; functional analysis; creativity; geometric and kinematic requirements; plane mechanisms, force, stress, deflection, event-time analyses applied to design project components and assemblies. Prereq: 331 or consent of instructor. 1 hour and 2 labs. F.

423 Irrigation and Waste Management System Design (3) Design of irrigation and agricultural water management systems, including system components, operation and management, practice management, and crop yield and water quality. Design content: 3 hours. Prereq: 315, Engineering Science 341 or Civil and Environmental Engineering 390. 1 hour and 2 labs. F.

430 Mobile Hydraulic Power System Design (3) Functional and operational characteristics of mobile hydraul- ics systems including components such as pumps, valves and actuators, power transmission and hydraulic control circuits. Prereq: Engineering Science 341 or Civil and Environmental Engineering 390. 2 hours and 1 lab. F.

433 Bioprocess System Design and Analysis (3) Design of processing, storage and handling systems for biological materials. Mass and energy balances, product and waste characterization, equipment specifications, economic analysis, and decision-making. Laboratory work includes: process control; sensor selection and interfacing; safety and human factors. Prereq: 401. 1 hour and 2 labs. F.

451 Electronic Systems (4) Basic electronics with biological applications. Analog and digital electronics, sensing and control and environmental parameters; sensors and signal conditioning; process control. Includes laboratory experiments. Prereq: ECE 319 or 439. 1 hour and 2 labs. F.

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

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

BIOSYSTEMS ENGINEERING TECHNOLOGY (194)

202 Materials and Fabrication (3) Properties of materials including wood, metals, concrete, plastics and lubricants; drafting and plan reading; fabrication techniques; analysis of basic engineering principles; agricul- tural and food processes. Fluid handling, drying, evapo- ration, thermal processing, heating and cooling, refrigeration systems, and materials handling. Prereq: Physics 101 or 221. 2 hours and 1 lab. F.

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

422 Food and Process Engineering Technology (3) Analytical and process design in food systems. Prereq: Math 119 or consent of instructor. 1 hour and 1 3-lab. Sp.

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

442 Agricultural Waste Management and Pollution Control (3) Waste characterization fundamentals; characteris- tics of animal manure, techniques for collecting, transport- ing, storing, and utilizing livestock waste. Prereq: Mathematics 125 or 123 or equivalent. 2 hours and 1 lab. F.

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

462 Agricultural Chemical Application Technology (3) Equipment for application of liquid, solid, and gas- eous agricultural chemicals; system components; opera- tion; and safety considerations; chemicals and pest manage- ment; safety considerations; materials handling and disposal methods. Prereq: Mathematics 123 or 125 or consent of instructor. 2 hours and 1 lab. Sp.

BOTANY (198)

110-120 General Botany (4,4) 110 - Introduction to taxonomy through freeing identification; basic organization and function of cells; respiration; photosynthesis; genet- ics (including meiosis, mitosis, Mendelian inheritance); survival of plant kingdom (bacteria, fungi, algae, mosses, ferns, conifers, and flowering plants); 120-Plant growth, anatomy, growth regulation; uptake and transport; or- gin of life and mechanism of evolution; ecology, impor- tance to humans and environmental concerns. Students receiving credit for 110-120 may not receive credit for either 130-140 or Biology 101-152, 110-F; 120-Sp.

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

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

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

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

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

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

330 Field Botany (3) Principles of taxonomy, basic ecological concepts and the identification, recognition, collection and preservation of local, native and naturalized plants. Prereq: 8 hours in biological sciences. F, Sp, Su

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

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

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

404 Plant Molecular Biology (4) Instructions to current research in plant molecular biology and to commonly used techniques in the field. Lectures include gene structure, gene expression and regulation, transformation, transposable elements, plant development, etc. Labs include isolation of DNA and RNA, molecular hybridization, isolation and preparation of plasmids, PCR amplification of specific sequences, DNA sequencing and transformation. Prereq: Biology 140 and 240 with appropriate concentration in a biological science. May be repeated. Maximum 6 hours.

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

431 Plant Ecology (3) Interactions between individuals, species, communities and their environment. Circulation of energy and matter in ecosystems. Weekly field trips or laboratory periods, and at least two weekend field trips. Prereq: 120 or Botany 130-140 or equivalent. (Same as Ecology and Evolutionary Biology 431.)

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

451 Plant Tissue Culture (3) Methods for the culture of cells, tissues, and organs including media preparation and maintenance of cultures. Lecture and lab. Prereq: 110-120 or 130-140 or equivalent and Chemistry 120-130 or equivalent. Recommended: 310, 321, 412, Microbiology 310 or 319; Ornamental Horticulture and Landscape Design 350; and Plant and Soil Science 351.

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

499 Evolutionary Ecology (3) Basic concepts in evolutionary and ecological genetics. Biogeography, climate, population genetics, evolution and natural selection, population growth and regulation, competition, niche, experimental ecology, predation, phylogenetics in ecology, biodiversity and conservation. Prereq: General Biology and General Ecology. Students may not receive credit for both 499 and 449. (Same as Ecology and Evolutionary Biology 499.) Sp, A-O

BROADCASTING (202)

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

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


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

360 Radio-TV Performance (3) Development of vocal, visual and performance skills for announcers, interviewers, narrators, reporters, and newscasters. Laboratory hours required. Prereq: 310.

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


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

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

450 Radio, Television and Society (3) Effects of electronic media on society. Research and theory applied to current issues. Prereq: Communications 100 or Speech Communication 100.

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

470 Cable Television and Emerging Technologies (3) History and structure of the cable television, video-on-demand television industry. Cable regulation and programming. Examination of the role of telephone companies in the distribution of video. Analysis of all relevant technologies including direct broadcasting, direct to home satellite television, CATV, video on demand, pay television and others. Prereq: 275 or consent of instructor.


490 Radio and Television Management (3) Business policies and practices of broadcast operations, department functions, cost and income analysis, leadership styles and techniques, with emphasis on mid-level management. Capstone course to be taken in student’s last semester. Prereq: Senior standing.

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

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

BUSINESS ADMINISTRATION (205)

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

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

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

311 International Business (3) Survey of strategic implications of conducting business operations in an international context. Analysis of relevant cross-national environments, including cultural, political, economic and legal characteristics. Prereq: Economics 201.

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

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

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

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

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

BUSINESS LAW (216)

301 The Legal Environment of Business (3) Introduction to legal system including legal ethics (jurisprudence), sources of law, laws in lawsuits, constitutional law, administrative law, administrative agencies, civil rights, contract law, property law, torts, wills and trusts, business organizations (corporation, partnership, limited liability company), secured transactions, securities, bankruptcy, suretyship, insurance, and personal property. Prereq: Consent of instructor. May be repeated for credit. Prereq: 301. E

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

Courses of Instruction 157
CHEMISTRY (235)

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

110 Introduction to Organic and Biochemistry (4) Organic chemistry: alkanes, unsaturated and aromatic hydrocarbons, organic functional groups. Biochemistry: amino acids and proteins, carbohydrates, lipids, nucleic acids. 3 hours and 1 lab. Prereq: 100 or 320. E

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

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

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

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

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

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

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

301 Industry/Laboratory Internship (3) Supervised by industry/laboratory technical staff at an approved facility. Consists of a full-time "hands-on" individual assignment for entire semester. Students work with faculty on research projects requiring knowledge and skills acquired in chemistry courses. An Honors Thesis is written and is defended orally before a faculty committee. Prereq: 400. E

320 Advanced Inorganic Chemistry (3) Atomic and molecular structure, bonding theories, descriptive chemistry of the elements, kinetic and mechanistic behavior of inorganic reactions, applications of modern techniques for characterization, coordination and organometallic chemistry. Prereq: 230. Sp

345 Family Resource Management (3) Application of managerial functioning in family settings; identification of and limited to chemistry majors. Prereq: 230 or consent of instructor. Sp

350 Early Childhood Education I: Environments for Children (4) Classroom management, behavior guidance, organization of day care environments, communication, interpersonal skills, interaction with children, social, emotional, and cognitive development. Includes observation. Satisfactory/No credit grading only. Prereq: 351 Early Childhood Education II: Curricula and Program Development for Young Children (4) Planning effective early learning programs for young children: knowledge of children's growth and development and appropriate experiences in art, music, and physical development. Laboratory participation included. Prereq: 479 and 481. E

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

383 Advanced Physical Chemistry (3) Atomic, molecular, and statistical mechanics; quantum mechanics of the electron. Prereq: 349 and 369. F

400 Research in Chemistry (3) Open to senior majors with consent of department head. Written reports are required. Advanced students work with faculty on projects related to knowledge and skills acquired in their home chemistry curriculum. May be followed by either 400 or 408 (but not both); maximum of 6 hours of Research in Chemistry. E

401 Advanced Industry/Laboratory Internship (3) Supervised by industry/laboratory technical staff at an approved facility. Consists of a full-time "hands-on" individual assignment for entire semester. Students work with faculty on research projects requiring knowledge and skills acquired in chemistry courses. An Honors Thesis is written and is defended orally before a faculty committee. Prereq: 400. E

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

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

430 Advanced Organic Chemistry (3) Modern organic reactions, applications of modern techniques for characterization, coordination and organometallic chemistry. Prereq: 230. Sp

440 Advanced Physical Chemistry (3) Atomic, molecular, and statistical mechanics; quantum mechanics of the electron. Prereq: 349 and 369. F

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

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

473-483 Physical Chemistry (3,3) Students may not receive credit for both 473 and 483. 473 —Thermodynamics; second law of thermodynamics; equilibrium; chemical equilibria; simple phase equilibria; properties of solutions. 483 —Introduction to statistical thermodynamics; kinetics of chemical reactions; introduction to quantum mechanics and applications to electronic structure of atoms and molecules. Prereq: 349 and 138. Coreq: 139. Prereq: 130 or consent of instructor. Sp

479-489 Physical Chemistry Laboratory (2,2) Experiments on topics discussed in 471-481 and 473-483. Prereq or Coreq: Corresponding courses 471 or 473 for both 479 and 483. 479 —Properties of gases; first, second and third laws of thermodynamics; chemical equilibria; simple phase equilibria; properties of solutions. 489 —Electromagnetic radiation; nuclear structure; classical and quantum mechanics. 1 lab. Prereq: 479-E, 489-Sp

490 Introductory Polymer Chemistry (3) Fundamenta- l principles stressing the role of chemistry in the interdisciplinary field of polymer science. Relation of molecular structure of polymers. Prereq: 360. Prereq or coreq: 471 or 473. F

CHILD AND FAMILY STUDIES (245)

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

205 Introduction to Family Life Programs (2) Community and school-based programs that focus on enhancing individual and family life. Includes observational experi- ences at community setting. No credit for students who have completed 200. E

210 Human Development (3) Conception through adulthood: in various social/ecological contexts; relationship- ships among various aspects of development: physical, cognitive, emotional, social; normative, nonnormative development. Includes observation.

211 Development in Infancy and Early Childhood (3) Development from conception through early childhood; interrelationships among cognitive, emotional, social, physical aspects of ontogeny; normative, nonnormative development and adjustment. Includes observation.

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

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

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

312 Families in Middle & Later Adulthood (3) Adult life in society from youth through elderly, adjustment to internal, environmental changes through adulthood, interrelationships among various aspects of develop- ment: psychological, cognitive, emotional, social. Includes observation.

320 Parenting (3) Factors in contemporary American families impacting on parent-child relations across the life cycle. Review of strategies for strengthening parenting skills. Prereq: 220 or consent of instructor.

345 Family Resource Management (3) Theory and application of managerial functioning in family settings; analysis of goals, resource use, information systems, constraints within families. Observation and analysis of diverse family practices. Prereq: 220 or consent of instructor.

350 Early Childhood Education I: Environments for Children (4) Classroom management, behavior guid- ance, organization of day care environments, communi- cation, interpersonal skills, interaction with children, child stress reduction and management in classroom. Laboratory participation included. Prereq: 110 and 211, HRD 210, admission to the major or consent of instructor.

351 Early Childhood Education II: Curricula and Program Development for Young Children (4) Plan- ning effective early learning programs for young children: knowledge of children's growth and development and appropriate experiences in art, music, num- ber, logic, media, physical knowledge; planning, imple- menting, evaluating curriculum activities. Laboratory participation included. Prereq: 350 and admission to the Child Development major or admission to the Early Childhood Education licensure program.

352 Diversity in Family-School-Community Rela- tions (3) Techniques for developing community rela- tionships, including advocacy for families and children from diverse cultures and populations. Includes observ- ation. Pre or Coreq: 351 or consent of instructor. Sp

353 Reading, Language, and Literacy (3) Theory and methods for creating learning environments for the development of language, emergent literacy, and read- ing and writing skills from infancy through eight years. Prereq: 350 and admission to Early Childhood Educa- tion licensure program or 351 or permission of instructor. Sp

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

405 Development and Teaching of Interpersonal Communication (3) Development of basic interpersonal skills needed to work with families and other professionals. Skills include active listening, self-disclosure, relation- ship-building, and negotiation. Process of teaching in- terpersonal skills and group facilitation in observation setting. Prereq: Family Studies majors only.
420 Family Diversity (3) Cultural, socioeconomic, ethnic variations; emerging needs and programs. Prereq: 220, Junior standing or consent of instructor. (Same as African-American Studies 420.)


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

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

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

451 Early Childhood Education III: Including Exceptional Children (3) Individualized curriculum planning based on knowledge of normative, nonnormative development, assessment, effective teaching strategies for facilitating development. Includes participation. Prereq: 220 and admission to the Child Development major or to the Early Childhood Education licensure program.

455 Children and Stress (3) Theory and methods for understanding young children's stressors, examining children's coping strategies, and designing appropriate intervention techniques and learning environments. Prereq: Admission to the Child Development major or the Early Childhood Education licensure program or by consent of instructor. Sp. A

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

470 Student Teaching (6-12) Responsibility for planning and guiding groups of infants, toddler, or preschoolers under supervision of classroom teacher and coordinator. Includes weekly seminar. Prereq: 350 and 351 and admission to the Child Development major or admission to the Early Childhood Education licensure program and completion of all progression requirements. Satisfactory/No Credit only. F and Sp student teaching begins on first day of registration and ends on last day of final examination period (student teacher follows the CDL calendar and does not include Fall or Spring break). Summer student teaching begins the day following Fall, commencement and ends on the day before Summer commencement. Priority for summer student teaching is given to students who have completed all program requirements, except student teaching, prior to the Summer session.

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

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

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

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

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

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

CHINESE (249)

131-132 Elementary Chinese I (3,5) (Same as Asian Languages 131-132.)

231-232 Intermediate Chinese I (3,5) (Same as Asian Languages 231-232.)

311-312 Chinese Literature in English Translation (3,5) (Same as Asian Languages 311-312.)

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

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

CINEMA STUDIES (251)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

CLASSICS (257)

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

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

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

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

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

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

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

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

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

362 Roman Law (3) This course covers the historical development of Roman law in the Classical period (50 B.C.-A.D. 75) with an emphasis on the analysis of case-law in the areas of property, or debt. (Same as Legal Studies 362.)

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

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

383 Women in the Greek and Roman World (3) The condition of women in the apparently male-dominated world of Classical Greece, the Roman Empire, and the Roman World. Evidence from literature, vase paintings, and other arts is examined from the age of Homer to the second century A.D. Major aspects include the role of women in the Roman Empire and Roman Italy in the first and second centuries A.D. (Same as Women’s Studies 383.)

401 Greek Poetry (3) Epic, lyric, drama. Authors vary. May be repeated for credit. Maximum 9 hours. Prereq: 281.

402 Greek Prose (3) History, philosophy, and oratory. Authors vary. May be repeated for credit. Maximum 9 hours. Prereq: 281.
441 Special Topics in Classical Civilization (1-3) Topics in art, literature, religion, and society of Greece and Rome. May be repeated up to three times with consent of department.

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

491 Foreign Study (1-15) Limited to College Scholars students.

492 College Honors: Off-Campus Study (1-15) Limited to College Scholars students.

493 College Honors: Independent Study (1-15) Limited to College Scholars students.

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

COMMUNICATIONS (259)

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

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

300 Mass Communications Research Methods (3) Social science research methods, especially sample surveys, used by communications media. Applications to both internal decision-making and to external communication in media. Prerequisite: Journalism 200, or Advertising 350, or Broadcasting 310 or 320, or Speech Communication 390, or consent of instructor. (Same as Legal Studies 300.)

400 Mass Communications Law and Ethics (3) Emphasis on legal issues directly affecting the mass media: libel, privacy, press-fair trial, judicial controls, governmental regulations. Also includes ethical standards and practices of the mass media in America. Prerequisite: Journalism 200, or Advertising 350, or Broadcasting 310 or 320, or Speech Communication 390, or consent of instructor. (Same as Legal Studies 400.)

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

COMPARATIVE LITERATURE (260)

202-203 Cross-Cultural Perspectives in World Literature (3,3) Literary perspectives and values in different time periods and cultures approached from an international context and including an introduction to the theory, methods, and objectives of comparative literature. Variable content. Writing-emphasis course.

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

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

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

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

COMPARATIVE AND EXPERIMENTAL MEDICINE (262)

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

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

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

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

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

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

COMPUTER SCIENCE (266)

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

102 Introduction to Computer Science (4) Problem solving and algorithm development. Organization and characteristics of modern digital computers with emphasis on developing good programming habits, building abstractions with procedures and data, and programming in a modern language. Students who have received credit for 140 or 160 may not also receive credit for 102 without consent of instructor.

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

160 Computer Organization (4) Number systems, Boolean algebra, combinational and sequential circuits, registers, processor functional units and control, computer memory systems, computer architecture, operating systems, computer programming, computer memory, management, computer system organization, assembly language programming. Prerequisite: 102. 3 hour lab required.

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

300 Scripts and Utilities (1) Practical tools available under Unix to enable students to become more efficient in pursuing research projects. Topics to be covered include: shell, csh, grep, find, sort, at, ed, sed, awk, perl, python, make, rcs, jgraph, gcc/cpp, purify/quantify. Prerequisite: 140 or consent of instructor. Satisfactory/No Credit grading.

311 Discrete Structures (3) Design, analysis, and implementation of fundamental algorithms, such as sorting and searching, and their data structures. Prerequisite: 140 and 160. 3 hour lab required.

312 Numerical Analysis (3) Emphasis on numerical methods, supercomputers and computer modeling and simulation of physical systems. Emphasis on faculty research. May be repeated. Maximum 9 hours. Prerequisite: completion of core curriculum or consent of instructor.

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

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

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

493 Independent Study (1-15) Special project in area of student’s primary interest. Directed by Computer Science faculty, perhaps jointly with student’s faculty advisor. Intended for students with a specific project to pursue in conjunction with a faculty member. Project may be from a department other than Computer Science in which the student wishes to pursue a research project. Faculty advisor approval required. Maximum 6 hours may be applied to the major. Prerequisite: consent of instructor.

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

COUNSELOR EDUCATION AND COUNSELING PSYCHOLOGY (267)

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

206 Facilitation of Technical Work Teams (3) Psychologically informed approach to facilitating technical work teams. Emphasis on faculty research. Supervised experience in leading work teams. For engineering students sophomore level and above. Letter grade only.

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

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

493 Directed Independent Studies (1-3) Independent study in a specialized area with physical education. May be repeated. Maximum 9 hours. Prereq: Consent of advisor and approval of the major. Satisfactory/No Credit or letter grade.

DANCE (274)

101 Practicum: Dance Production (1) Supervised technical and promotional production aspects of university dance company. May be repeated. Maximum 2 hours.
201 Practicum: Dance Performance (1-2) Preparation and presentation of university dance company performances. Participation through audition only. May be repeated. Maximum 16 hours.
210 Ballet: Level I (2) Instruction and practice in intermediate classical ballet techniques. May be repeated. Maximum 4 hours.
220 Jazz: Level I (2) Instruction and practice in elementary jazz dance styles and techniques. May be repeated. Maximum 4 hours.
230 Modern: Level I (2) Instruction and practice in elementary modern dance techniques. May be repeated. Maximum 4 hours.
240 Tap: Level I (2) Instruction and practice in elementary tap dance techniques.
310 Ballet: Level II (2) Instruction and practice in intermediate classical ballet techniques. Available to minors or with consent of instructor. May be repeated. Maximum 12 hours.
320 Jazz: Level II (2) Instruction and practice in intermediate jazz dance styles and techniques. Available to minors or with consent of instructor. May be repeated. Maximum 12 hours.
330 Modern: Level II (2) Instruction and practice in intermediate modern dance styles and techniques. Available to minors or with consent of instructor. May be repeated. Maximum 12 hours.
340 Tap: Level II (2) Instruction and practice in intermediate tap dance techniques. Prerequisite: 240 or consent of instructor.
380 Special Topics (1-3) Selected disciplinary or professional areas of dance. May be repeated.
410 Ballet: Level III (2) Instruction and practice in advanced classical ballet techniques. Available to minors or with consent of instructor. May be repeated. Maximum 16 hours.
415 Teaching Creative Dance for Children (2) Theory, methods, materials and practical experience in the presentation and integration of creative and dance in grades K-6. A course focused on the participants' interest involved in this class. Prerequisite: Admission to Teacher Education Program. E
420 Jazz: Level III (2) Instruction and practice in advanced jazz and musical theater dance styles and techniques. Available to minors or with consent of instructor. May be repeated. Maximum 16 hours.
430 Modern: Level III (2) Instruction and practice in advanced modern dance techniques. Available to minors or with consent of instructor. May be repeated. Maximum 16 hours.
440 Composition I (2) Composition I (2) Choreographic skills emphasizing the basic techniques and concepts of advanced dance. This course focuses on the choreography of solos and duets. Prerequisite: 4 hours credit in upper level modern dance technique (330 or 430) or approval of instructor.
445 Composition II (2) Choreographic skills emphasizing the advanced techniques and concepts of dance composition. This course will focus on the choreography of group works and the technical aspects of production. Prerequisite: 440 or approval of instructor.
480 Dance History through the 19th Century (3) Survey of the development of major societies and cultures from prehistory through the nineteenth century. Senior standing or graduate status required for graduate credit. Different level of performance is expected of those registered for graduate credit.
490 Dance in the 20th Century (3) Survey of history and philosophy of dance in the 20th century. Senior standing or graduate status required for graduate credit. Different level of performance is expected of those registered for graduate credit.
493 Directed Independent Studies (1-3) Independent study in a specialized area with dance. May be repeated. Maximum 9 hours. Prerequisite: Consent of instructor.
495 Dance Pedagogy (3) Principles and methods of teaching dance within the context of a major in a mini-dance teaching experience. Prerequisite: Upperclass or graduate standing and approval of instructor. Senior standing or graduate status required for graduate credit. Different level of performance is expected of those registered for graduate credit.

EARLY CHILDHOOD EDUCATION (279)

410 Early Childhood Special Education Foundations (3) Introduction to the field of early childhood special education including the nature of disabling conditions; theoretical perspectives in the field; legislation, policies and procedures used in the field. Prerequisite: Admission to Teacher Education Program.
422 Early Childhood Teaching Methods (6) Methods and materials for teaching in early childhood classrooms focusing on K-4th grade. Emphasis on holistic integrative approaches to curricular development and presentation. Prerequisite: Pre-K-4th licensure program and admission to Teacher Education.
445 Early Childhood Education: Program Development and Teaching practicum in kindergarten (3) Curriculum planning, classroom organization and management practices for teaching young children; relationship of kindergarten to the elementary school. Prerequisite: Admission to Teacher Education Program.
471 Early Childhood Special Education (6) Assessment, curriculum planning and development and teaching approaches used in early childhood special education. Prerequisite: Admission to Teacher Education Program. F
472 Field Experience in Early Childhood Special Education (2-3) Placement in educational settings serving young children with special needs. Provides experience in assessment, curriculum planning and teaching. Prerequisite: Admission to Teacher Education Program. May be repeated. Maximum 5 hours. E

ECOLOGY AND EVOLUTIONARY BIOLOGY (278)

202-203 Ecology and Evolutionary Biology Colloquium (1-2) Weekly discussions of current topics in ecology, behavior, and evolutionary biology including undergraduate research and career opportunities, for declared and potential majors. Course familiarizes students with the contemporary research and its applications and introduces them to departmental faculty and research. S/NC only. Prerequisite: Biology 101 or 102 or 130 or 140 or equivalent introductory biology course. 3 hours lecture, 3 hours lab.
305 Evolution and Society (3) Issues and controversies surrounding the teaching and learning of evolution in America today. May not be applied to Ecology and Evolutionary Biology major. Prerequisite: Biology 101 or 102 or 130 or 140 or equivalent introductory biology course. 3 hours lecture, 3 hours lab.
350 Comparative Vertebrate Biology (4) Origins, phylogeny, diversity and functional anatomy of vertebrates. Laboratory involves dissection of shark, cat, and selected other vertebrates. 2 hours and 2 labs.
360 Comparative Invertebrate Biology (4) Origins, phylogeny and functional anatomy of invertebrates with emphasis on diversity of life forms and adaptations to specific local environments. 2 hours and 2 labs.
370 Ethology and Sociobiology (3) Basic concepts in the evolution of behavior and the study of applications to psychology, the social sciences, and the humanities. (Same as Psychology 370.)
380 General Entomology (3) Introduction to insects: basic structure, physiology, behavior, evolution and classification of insect orders. 2 hours and 1 lab.

COURSES OF INSTRUCTION 161
**Courses of Instruction**

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

402 Practicum in Ecology and Evolutionary Biology (2) Participation in individualized practical applications of ecology, behavior, and evolutionary biology in community, government, or industry. Prereq: Biology 210, 220, 230 and prior consent of instructor.

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

409 Perspectives in Ecology and Evolutionary Biology (3) Forefront considerations of ecology, behavior, and evolutionary biology. Emphasis on current developments for applications, including societal and economic impacts and moral and ethical implications. Writing emphasis course. An oral presentation and a referenced library-research essay are required.

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

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

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

450 Comparative Animal Behavior (3) Principles and methods of ethology with emphasis on ecological, developmental, physiological and evolutionary aspects. (Same as Psychology 450.)

459 Comparative Animal Behavior Laboratory (3) Introduction to observational and experimental research in ethology. Coreq: 450. (Same as Psychology 459.)

460 Evolution (3) Principles, facts, and theories regarding biological evolution, Concepts, processes and product in the development of organic diversity. The historical development of ideas concerning biological evolution. Prereq: Biology 240 or consent of instructor.

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

470 Aquatic Ecology (3) Introduction to the physico-chemical nature of inland waters with description of biotic communities and their interrelationships. Prereq: Chemistry 120-130 and Biology 230. 2 hours and 1 lab.

474 Ichthyology (4) Evolution, classification, collection and identification, distribution and biology of fishes with emphasis on freshwater fauna of Eastern North America. Prereq: Biology 230 or consent of instructor. 2 hours and 2 labs.

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

484 Conservation Biology (3) Application of principles and techniques of ecological research to conservation of biological diversity at genetic, population, community, and ecosystem levels. Prereq: Biology 220, 230.

490 Undergraduate Seminar (1) Student oral presentations of topics related to developmental and working knowledge of advanced and emerging concepts of ecology and evolution. All majors are encouraged to register. Consent. Upper division standing in the Biology major. May be repeated for a maximum of 2 credit hours.

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

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

**ECONOMICS (283)**

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

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

311 Intermediate Microeconomics (3) Theories of consumer behavior, production and costs of price, and behavior of firms in perfectly competitive, monoplistic and imperfectly competitive markets, input prices, income distribution, welfare and general equilibrium. Prereq: 201.


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

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

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

341 Survey of Labor Economics (3) Extension of economic principles to labor market, public policy questions, demand and supply, theory of wage differentials, unemployment, unions in the private sector, investment in individuals, education and training, mobility. Prereq: 201.

351 Monetary Economics (3) Role of money in the economy, Federal Reserve System, evaluation of monetary policy, U.S. depository institutions and money supply process. Prereq: 201.

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

381 Econometrics (3) Methods of specification, estimation, testing and forecasting of economic relationships. Includes specification of models, estimation methods, statistical inference, behavior of forecasting procedures and common econometric problems, such as multi-collinearity, heteroscedasticity, and autocorrelation. Prereq: 201, Statistics 201, Mathemat- ics 123-125 or 141-142.

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

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

415 Western Economic Thought Since the 18th Century (3) Methods of studying of doctrinal history. Origins and evolution of economic theories of production and consumption, economic, economics of Keynes and his followers, principal developments of second half of 20th century. Major writing requirement. Prereq: 201 or equivalent and consent of instructor. Not available for grad- uate credit in History. (Same as History 415)


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

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

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

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

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

492 Economics Off-Campus Study (1-6) Satisfactory, No Coursework Only. Prereq: Consent of instructor.

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

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

**EDUCATION (289)**

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

400 Professional Studies: Teachers, School, and Society (2) Focus on roles and responsibilities of teachers, on how schools are organized and the relationship between schools and the community. Prereq: or coreq: Educational and Counseling Psychology 431.)

401 Professional Studies: The Learner (3) Understanding of students from diverse cultures; study of learning theories; special needs of learners: behavior management techniques and assessments. Prereq: or Coreq: Educational and Counseling Psychology 210 and either 401 or 400; Prereq: Admission to Teacher Education.

**EDUCATIONAL PSYCHOLOGY (310)**

210 Psychoeducational Issues in Human Development (3) Understanding and application of the psychol- ogy of human development to teaching/learning pro- cess in educational settings. Primarily for students enrolling in Teaching or Human Services. E

215 Learning Skills and Study Systems (3) Ap- proaches to enhancing academic performance through study skills, efficient reading and understanding of per- sonal factors.

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

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

432 The Disadvantaged Student: Psychoeducational Perspectives (3) Theory and research regarding ecolo- gy, psychosocial behavior and appropriate interventions.
460 Self-Management in the Helping Professions (3) Applications of self-management strategies to career, social, emotional and health domains for both helping professionals and their clientele. Prereq: Introductory course in psychology or permission of instructor. Su

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

**ELEMENTARY EDUCATION (322)**

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

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

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

356 Elementary and Middle School Teaching Laboratory Experiences (2) theoretical and micro-teaching experiences to develop planning skills and give feedback to students relative to their ability to apply learning to school settings. Prereq: Admission to Teacher Education Program. F, Sp

421 Elementary and Middle School Science and Social Studies Instruction (3) Methods and materials for teaching science and social studies. Development of functional relationships and individual entities of the two fields. Not open to students with recent course or background in The Teaching of Elementary School Science and/or Social Studies. Prereq: Admission to Teacher Education Program. F, Sp

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

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

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

**ENGINEERING AEROSPACE (318)**

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

351 Compressible Flow (3) One-dimensional internal flow with shocks, friction and nonideal gases. Two-dimensional external flows. Prereq: ES 341, ME 332, Sp

362 Dynamics/Vibrations (3) Central force motion, transfer orbits, free and forced vibrations of single and multiple degree vibrating systems. Prereq: ES 251, F


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

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

424 Astronautics (3) Physical mechanics, propulsion, atmospheric research and specific vehicles including reentry thermal protection materials, human factors in space flight, the space environment, and current topics. Prereq: 351. Coreq: ME 344.

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

426 Introduction to Aerospace Design (2) Design process, synthesis, safety, reliability, patents, product liability, economic analysis, optimization, design standards, design studies, Individual design reports require: Prereq: 351, 370, BME 310, Mech. E. 3, F, Pr

429 Aerospace System Design (4) Synthesis and design of a complete aerospace system composed of economic and technical aspects. Participation in team design effort involving formal presentations and design report. Prereq: Math 422, 425, 426,130-140.

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

449 Aerospace Engineering Laboratory (3) Designing, conducting, and interpreting results of aerospace experiments. Test standards and specifications. Analysis of data and formation of conclusions. 3 hours lab per week. Prereq: 345, 351, 425. Sp

**ENGINEERING BIO MEDICAL (192)**

271 Introduction to Biomedical Engineering (3) Application of the skills developed in Engineering Fundamentals to problems in biomedical engineering. The relationship of anatomy, physiology, and biochemistry to the design of artificial organs, orthopedic implants, medical imaging, and other biomedical applications is explored. Prereq: Math 102.

300 Engineering Physiology (3) The study of human physiology, with an emphasis on making engineering decisions, and the development of computational models; the application of the skills developed in design. Prereq: 351, 370, BME 310. Coreq: 360. F

301 Biomedical Seminar (1) Engineering Profession and career planning: seminars on current BME topics. Satisfactory/No Credit. Prereq: Junior Standing in BME.

310 Biomechanics (3) The application of mechanics of materials and fluid mechanics to biomedical engineering problems. The special characteristics of living tissue and biological fluids and their effects on computational processes will be introduced. Prereq: ES 231, 341, BME 300.

346 Design of Experiments (3) Study of statistical design and analysis of experiments as applied to bio-engineering application. Application of statistical tools to biomedical experimentation, manufacturing methods, and biomedical research planning. Prereq: BME 300, Math 200, 241.


430 Biomedical Engineering Laboratory (3) This course will provide the student with practical experience associated with making measurements and interpreting data in living systems; experiments may include electrical, chemical, fluid flow, mechanical testing of biological materials, and human measurements. Prereq: BME 310, BME 346.

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

455 Biomedical Engineering Design I (2) Engineering economics, optimization, design for automation, reliability, patents and product liability; design of biomedical systems. Participation in team design efforts. Coreq: BME 370, BME 474.

469 Biomedical Engineering Design II (4) Design of complete biomedical device: documentation includes complete specification, design calculations, preparation of working drawings, and cost analysis. Written and oral reports. Prereq: BME 310, BME 474.


**ENGINEERING CHEMICAL (226)**


230 Introduction to Chemical Engineering Thermoodynamics (3) Introduction to the laws of thermodynamics, state functions, energy, entropy, equilibrium and phase diagrams. Prereq: 210. F

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

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

301 Chemical Engineering Data Analysis (3) Analysis of experimental data; identification of system extremes; statistical and empirical modeling of processes; statistical process control; optimization techniques. Prereq: Math 200.

310 Chemical Engineering Laboratory (3) Thermodynamics, fluid flow and heat transfer in chemical engineering. Prereq: 240. Coreq: CHE 230. F

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

360 Process Dynamics and Control (4) Introduction to process modeling and applications to problem system design. Prereq: CHE 230. F

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

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

403 Introduction to Optimization (3) Principles and applications of optimization techniques to chemical process design; unconstrained and equality constrained optimization, least squares, dynamic programming, and geometric programming. Prereq: Math 241.

407 Honors Seminar (1) Presentations and discussions on topics of importance to chemical engineers. Prereq: Consent of instructor. Satisfactory/No Credit grading. May be repeated up to 6 times.

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

410 Chemical Engineering Laboratory II (3) Laboratory investigations of mass transfer and chemical reaction phenomena in chemical engineering. Prereq: 310, 350.

415 Computer Applications in Chemical Engineering (3) Introduction to computer solution of chemical engineering problems. Primary focus on the application of personal computer programs. Includes flow sheet simulators, statistics, spreadsheets, graphics and process modeling.


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

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

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

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

477 Honors: Applied Process Automation Laboratory (3) Interfacing flexible batch continuous processes to automation systems. Top down analysis with bottom up implementation, hierarchical structures and object oriented concepts are used to design automation solutions including human-machine-interfaces. Workstations with modern industrial equipment provide an interactive and visual environment. Prereq: 360 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 solutions by small teams of students. Advanced control strategies, networking and interface (HMI) design software are used on workstations and industrial controllers. Prereq: 477 and consent on instructor.


485 Hydrocarbon Processing (3) Chemical and physical properties of selected petroleums and processes utilized in conversion of raw material into various fuels and selected chemical feedstocks. Prereq: 340, Chem 350.

488 Honors: Design Internship in Industrial Pollution Prevention (3) Selected students work in small groups to address the prevention of industrial pollution through industrial pollution control, water quality, and rainwater runoff. May be substituted for 490 with departmental approval. Prereq: 480 and consent of instructor.


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

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

ENGINEERING CIVIL AND ENVIRONMENTAL (254)

205 Professional Development I (2) Introduction to civil engineering specialties, history, and achievements. Professional responsibility, communication, and organizational skills. Prereq: Engineering Fundamentals 102.

210 Engineering Measurements (4) Measurement through application of surveying techniques; theory of errors and their analysis; concepts of horizontal, vertical and angular measurements and control; construction surveys; route surveying; geodetic curves, and 1 lab. Prereq: Sophomore Standing.

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

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


351 Transportation Engineering I (3) Transportation problems and perspectives, rural and urban; use of systematic planning processes; development of alternative solutions to transportation problems. 3 hours, 1 lab. Prereq: 205, Coreq: 361.

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

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

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

390 Hydraulics (4) Basic laws and properties of incompressible fluids. Units and dimensional analysis; drag forces; continuity, energy, and momentum equations; pipe flow; flow measurement; open channel flow and culverts; pump characteristics. 3 hours, 1 lab. Prereq: 205 or Biosystems Engineering 243; Engineering Fundamentals 102; Nuclear Engineering 203.

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

400 Senior Design Project (3) Open-ended, comprehensive project emphasizing team approach to design process. Includes problem formulation, site planning, preliminary design, procurement of materials, cost estimation, and various project components typical of those faced by practicing civil engineers. Prereq: Must be taken during the term of graduation. Summer graduates must take during their last preceding term...

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

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

421 Portland Cement Concrete Mix Design and Analysis (3) Aggregate properties and tests, tests of portland cement, concrete, mix design, design and construction of civil engineering projects. 2 hours lecture, 1 hour lab. Prereq: 330 or consent of instructor.

435 Foundation Engineering (3) Fundamentals of geotechnics applied to design and analysis of soil-structure systems; subsurface investigation; design of shallow and deep foundations on rock, and soil evaluation and structure of soil-structure systems. Prereq: Microcomputer applications. Prereq: Senior standing and Statistics 251.

442 Construction Methods and Equipment (3) Fundamentals of construction and equipment selection and productivity. Estimating, and various project components typical of those faced by practicing civil engineers. Prereq: Must be taken during the term of graduation. Summer graduates must take during their last preceding term...

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

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

453 Airport/Railroad Planning and Design (3) Airport master planning and railroad engineering. Runway configuration, airfield geometry, capacities and terminal layout and design. Railroad capacity, geometrics and terminal layout and design. Prereq: 210, 251, 352.

462 Analysis of Framed Structures (3) Vertical and lateral force resisting systems; gravity loads due to dead, live, and snow loads; lateral loads due to earthquake and wind; use of computer in structural analysis, building modeling and analysis. Prereq: 351, 352.

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

472 Steel Design (3) Design of plate girders and composite beams; consideration of members subjected to combined stresses; design of a typical framed building including connections. Prereq: 471.

474 Reinforced Concrete Design (3) Design of continu-
ENGINEERING INDUSTRIAL (556)

202 Work Methods and Measurement (3) Productivity and work design. Methods including flow, activity, and worker machine charts as well as work methods improvement techniques and procedures. Human factors in the improvement of work methods. Stopwatch time studies, predetermined time systems, and work sampling are used to establish, document, and maintain time standards, standard data, and allowances. Learning curves and wage payment systems. 2 hours lecture, 2 hours lab. Prereq: Engineering Fundamentals 101. Coreq: Statistics 251, F, Sp.

300 Engineering Data Analysis and Process Improvement (3) Engineering statistical methods as applied to modern engineering and business environments. Process improvement, inferences about process characteristics. Includes an introduction to the design of experiments to improve process. Lab component emphasizes the use of teams to provide hands-on experiences, enhance learning, and develop skills in group dynamics. 2 hours lecture, 1 lab. Prereq: Statistics 251 or Mechanical Engineering 345 or consent of instructor. F, Sp.

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

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

306 Simulation (3) Simulation of complex production processes using simulation software. Introduction to modeling concepts, flowcharting, random number generation, design of experiments, simulation logic, and computer animation. Utilization of statistical tools to analyze inputs and outputs to simulation models. Lab component provides hands-on experiences in developing simulation models for relevant industrial engineering case studies. 2 hours lecture, 1 lab. Prereq: 202, 301. F, Sp, Su.

310 Operation Research in Industrial Engineering II (3) Network models including PERT-CPM, introduction to non-linear programming, stochastically processes, and queueing theory. Basic decision analysis techniques and their applications in engineer practice. Prereq: 301. Sp.


403 Production Facilities Design and Material Handling (3) Design of production facilities including plant layout, conveyor systems, and material handling for overall moving, packaging and storage of materials. This includes office layout and service areas. Principles applicable to design of facilities and equipment. Prereq: 306. Coreq: IE 401. Sp.

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

405 Engineering Economic Analysis (3) Introduction to engineering economy and its application in engineering problems. Time value of money and discounted cash flow methods and techniques. Decisions among engineering alternatives including design options, equipment selection, break-even analysis, and similar sizing and selection problems including consideration of taxes and inflation. Analyzing uncertainty in economic estimates using nonprobabilistic techniques. Prereq: Junior standing or consent of instructor. F, Sp, Su.

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

422 Senior Industrial Engineering Problems Analysis (3) Analysis of problems in industry. Credit toward field assignments in local organizations, including problem definitions, analysis and presentation. Prereq: Expected term of graduation or consent of instructor. F, Sp, Su.


440 Process Improvement Through Planned Experimentation (3) Review of fundamentals of continuous improvement, advanced statistical process control techniques, and strategies for short production runs. Use of experimental design techniques to improve processes, including fractional factorial and multiple blocking. Lab component utilizes statistical and simulation software to provide hands-on experience. 2 hours lecture, 1 lab. Prereq: 300. Sp.


494-495 Special Topics in Industrial Engineering (1, 3, 1-3) Recent developments in industrial engineering including new areas of application, new research techniques and new methodologies. May be repeated once. Prereq: Senior standing and consent of instructor. F, Sp, Su.

ENGINEERING MATERIALS SCIENCE (638)

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

290-291 Materials Seminar (0, 1) Professionalism, ethical considerations, safety and health, work practices, work hours, work ethics, engineering ethics. Prereq: Senior standing and consent of instructor. F, Sp. Coreq: 290 or 291. May be repeated. Prereq: Senior standing and consent of instructor. F, Sp, Su.

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

302 Mechanical Behavior of Materials I (3) Tensile testing of metals, ceramics and polymers; deformation mechanisms and failure; crystallography and non-crystalline forms; rubber elasticity, viscoelastic behavior, creep, time-temperature superposition in polymer materials. Prereq: Expected graduating senior or consent of instructor. F, Sp.

303 Materials Science and Engineering Seminar (3) Same as Chemical Engineering 303.


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

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


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

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


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

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

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

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

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

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

472 Fundamental Principles of Composite Materials (3) Physical principles basic to the design, manufacture and application of fiber reinforced polymers, metals and ceramics. Prereq: 302 or equivalent. (Same as Engineering Science 426) F.

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

475 Fracture-Safe Design (3) (Same as Engineering Science 423). F, Sp.

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

489 Materials Design (3) Design projects involving materials selection and performance. Prereq: Senior standing. F

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

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

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

ENGINEERING MECHANICAL (650)


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


345 Mechanical Engineering Instrumentation and Measurement (3) Fundamentals of measurement systems; standards; dynamic characteristics of instruments; statistical data treatment; transducers; signal conditioning; strain, pressure, temperature and flow measurements. Coreq: 392; Prereq: ES 341, 345. F, Sp.


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

405 Microcomputer-Based Control of Electromechanical Systems (3) Application of microcomputers to control electromechanical devices. Application and theory: dynamics of machine control, assembly language programing, microcontroller architecture, stepping and DC motors, photodetector circuits, A/D, D/A, interfaced circuits. Prereq: EE 201 or EE 301 and consent of instructor.

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


451 Systems and Controls (3) Analytical models of physical systems; comprised of combinations of mechanical, fluid, electrical, and thermal components; feedback control systems, transient and frequency response, stability analysis; nonlinear control of linear systems; mechanical systems, digital filters. Prereq: ME 345, EE 301. F, Sp.

455 Introduction to Machine Design (2) Engineering economy, optimization, design for automation, reliability, patents and product liability; design of mechanical engineering tools and mechanical concepts. Participation in team design effort; requires design report. Prereq: ME 363. F.

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

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


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

475 Thermal Engineering (3) Thermal systems with emphasis on turbomachinery, heat exchangers, combustion and system analysis and design including selection and cost analysis and economic analysis. Prereq: 332, 344. F, Sp.


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

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

ENGINEERING NUCLEAR (716)

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


304 Nuclear and Radiological Engineering Laboratory (1) Application of measurement techniques and the analysis of nuclear instrumentation and computerized auxiliary equipment. Counting statistics, half-life and decay schemes, gamma spectrometry, heat transfer experiments. Prereq: 342. Coreq: 470.

Courses of Instruction 167
305 Energy Transport (3) Development of differential and integral energy conservation; conduction and convection heat transfer including numerical methods; application of nuclear reactor fuel elements, reactor cores, and heat exchangers. Prereq: 203.

342 Thermal Science (3) Fluid statics; conservation equations of mass, momentum, and energy; applications to fluid machinery; heat transfer processes, heat conduction, thermal radiation, free and forced convec-

351 Nuclear System Dynamics and Control (3) Sys-
tem modeling and time-domain response, transfer func-
tions, frequency-domain response, stability, space-state methods, and control design. Nuclear reactor kinetics, nodal modeling of core heat transfer, reactor control systems, and nuclear transient response are dis-

360 Reactor Safety Systems (3) Safety and operating limits of nuclear steam supply system compo-

400 Senior Seminar (1) Current topics related to nuclear and radiological engineering including ethics, contem-

403 Nuclear and Radiological Engineering Labora-

tory II (1) Comprehensive surveys, experiments, and courses in the fundamentals of neutronics, shielding, dynamics and controls, alpha and beta spectroscopy, radiation fields and do-

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


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

431 Radiation Protection (3) External and internal dosimetry, biological effects of radiation, radiation detection, radiation risk assessment. Prereq: 301.

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

470 Nuclear Reactor Theory I (3) Fundamentals of reactor physics relative to cross sections, kinematics of nuclear scattering, reactor kinetics, reactor systems, and nuclear data. Analytical and numerical methods applicable toGem criticality problems, eigenvalue searches, perturbation theory, and the multigroup diffusion equations. Prereq: 301.

471 Nuclear Reactor Theory II (3) Thermal spectrum computational methods: heterogeneities in fast and thermal spectra; considerations in reactor core design; equations that relate thermal and neutronic variables; power distribution calculations and reactivity control methods. Prereq: 470.

472 Nuclear System Design (4) First order design and analysis of a nuclear system, interface with nonnuclear system components; overview of experiments, computational methods, and applications. Prereq: 301.

483 Introduction to Reliability Engineering (3) Prob-
babilistic failure models, parameter estimation (maximum likelihood, Bayesian techniques). Model identification, accelerated testing, life tests, failure prediction, system reliability, preventive maintenance and warran-
ties. Prereq: Senior standing or consent of instructor.

484 Introduction to Maintenance Engineering (3) Principles of maintenance and reliability engineering, and maintenance management. Topics include infor-
mation extraction from machinery measurements, rotat-
ing machine condition, predictive maintenance, machine condition, life prediction, failure models, lubrication oil analysis, estab-
ilish a predictive maintenance program, and com-
puterized maintenance management. Prereq: Consent of instructor. Prereq: Senior standing in engineering and consent of instructor. (Same as Materials Science and Engineering 484, Industrial Engineering 484 and Mechanical Engineering 484).

494 Special Topics in Nuclear Engineering (3) Problems related to recent developments and practice. Prereq: Senior standing, consent of instructor. May be repeated.

495 Special Topics in Radiological Engineering (3) Problems related to recent developments and practice. May be repeated. Prereq: Senior standing or consent of instructor.

498 Research (1-3) Research related to recent devel-

500 Senior Seminar (1) Current topics related to nuclear and radiological engineering including ethics, contem-

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

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

506 Radiation Shielding (3) Types of radiation sources, fundamental principles of neutron attenuation, biological effects, approximate methods of shield design, discrete ordinates, and Monte Carlo. Prero: Physics 252.

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

531 Radiation Protection (3) External and internal dosimetry, biological effects of radiation, radiation detection, radiation risk assessment. Prereq: 301.

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

570 Nuclear Reactor Theory I (3) Fundamentals of reactor physics relative to cross sections, kinematics of nuclear scattering, reactor kinetics, reactor systems, and nuclear data. Analytical and numerical methods applicable toGem criticality problems, eigenvalue searches, perturbation theory, and the multigroup diffusion equations. Prereq: 301.

571 Nuclear Reactor Theory II (3) Thermal spectrum computational methods: heterogeneities in fast and thermal spectra; considerations in reactor core design; equations that relate thermal and neutronic variables; power distribution calculations and reactivity control methods. Prereq: 470.

572 Nuclear System Design (4) First order design and analysis of a nuclear system, interface with nonnuclear system components; overview of experiments, computational methods, and applications. Prereq: 301.

573 Introduction to Reliability Engineering (3) Prob-
babilistic failure models, parameter estimation (maximum likelihood, Bayesian techniques). Model identification, accelerated testing, life tests, failure prediction, system reliability, preventive maintenance and warran-
ties. Prereq: Senior standing or consent of instructor.

574 Introduction to Maintenance Engineering (3) Principles of maintenance and reliability engineering, and maintenance management. Topics include infor-
mation extraction from machinery measurements, rotat-
ing machine condition, predictive maintenance, machine condition, life prediction, failure models, lubrication oil analysis, estab-
ilish a predictive maintenance program, and com-
puterized maintenance management. Prereq: Consent of instructor. Prereq: Senior standing in engineering and consent of instructor. (Same as Materials Science and Engineering 484, Industrial Engineering 484 and Mechanical Engineering 484).
201 British Literature I: Beowulf through Johnson (3) Major literary works from three periods: Middle Ages, Renaissance, and Restoration and Eighteenth Century. Writing-emphasis course.


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

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

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

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

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

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

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

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

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

241 Introduction to Poetry (3) Poetry reading and analysis of poems. Writing-based on reading and discussion. Analysis of tradition and historical period. Writing-emphasis course.

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

251 designed for students with a 3.25 or higher GPA.

253 Introduction to Fiction (3) Introduction to writing fiction. Writing-emphasis course.

254 Themes in Literature (3) Study of important themes in English, American, and World literatures. Some sample themes are religion, crime, law, ecology, science, exploration, revolution, colonization/indiation, education, Multi-genre focus. Writing-emphasis course. See Timetable for topic.

255 Business and Technical Writing (3) Principles of written communication in science and business.

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


259 American Literature and Aesthetics Since 1899 (3) Major literary and cultural achievements in prose and poetry of the early twentieth century. May be repeated for credit.

263 Writing Poetry (3) Introduction to writing poetry.

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

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

268 American Culture to 1660 (3) Survey of English literature in the context of parallel developments in art, architecture, music, and social and intellectual history. Writing-emphasis course.

301 British Culture to 1660 (3) English literature in the context of parallel developments in art, architecture, music, and social and intellectual history. Writing-emphasis course.

302 British Culture: 1660 to present (3) English literature in the context of parallel developments in art, architecture, music, and social and intellectual history. Writing-emphasis course.

305 Introduction to Shakespeare (3) May not be used by English majors to fulfill the pre-1800 literature course requirement.

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

322 Women in American Literature (3) Women as writers

323 Black American Literature and Aesthetics (3) Black American literature and aesthetics since 1899, with emphasis on cultural evaluations and the principles of being “American”. Writing-emphasis course. (Same as African and African-American Studies 333.)

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


354 Prose and poetry of the American Renaissance. Writing-emphasis course. (Same as Women's Studies 452.)

365 Writing Fiction (3) Writing fiction.

401 Medieval Literature (3) Survey of medieval literature. Emphasis limited to 15. See Director of Undergraduate Studies for approval.

402 Chaucer (3) Chaucer and his contemporaries (e.g., Gower, Langland, Chaucer, Boccaccio, Francesco Petrarca, William Caxton, Geoffrey Chaucer, John Gower, Giovanni Boccaccio, Francesco Petrarca, William Caxton). Writing-emphasis course. (Same as Medieval Studies 401.)

403 Prose and poetry of the American Renaissance. Writing-emphasis course. (Same as Women's Studies 452.)

404 Shakespeare I: Early Plays (3) Shakespeare’s dramatic achievement before 1601. Select plays from the romantic comedies (e.g., Twelfth Night), the historical plays (e.g., Henry IV and II) and tragedy (e.g., Hamlet).

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

408 Renaissance Drama (3) English theatre between 1560 and 1640, including writing by Shakespeare’s contemporaries (e.g., Marlowe, Webster, Jonson).

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

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

412 Literature of the Later Eighteenth Century: Johnson to Burns (3) Survey of English literature and culture from 1745 to 1800.

413 Restoration and Eighteenth-Century Genres and Modes (3) Study of one major genre or literary modality, such as drama, novel, poetry, nonfiction, prose, satire, romance, or epic written between 1660 and 1800. May be repeated for credit.

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

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

416 Early Victorian Literature (3) May include poetry by Tennyson and the Brownings; prose by Carlyle, Newman, and Mill.

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

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

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

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

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

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

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

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

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

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

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

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

443 Topics in Black Literature (3) Contents vary according to particular genres, authors, or theories from 1845 to the present, including African, Afro-American, and the Harlem Renaissance. Richard Wright and Gwendolyn Brooks, writing by Black women, international Black literature in English, and Black American autobiography. (Same as African and African-American Studies 443.)

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

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

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

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

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

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

460 Technical Editing (3) Editing technical material for publication. Preparations, styles, and production management. Prereq: 360 or consent of instructor.

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

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

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

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

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

471 Sociolinguistics (3) Language in relation to society. Empirical and theoretical focus. Emphasis on large-scale units: tribes, nations, social groups, and attitudes. Prereq: 313 or 321 or 371 or 372 or Linguistics 200 or consent of instructor. (Same as Linguistics 471 and Sociology 471.)

472 American English (3) Phonological, morphological, and syntactic features of American English and regional variation, especially of the English language with attention to their origins, functions, and implications for cultural pluralism. Prereq: 371 or 372 or Linguistics 200 or consent of instructor. (Same as Linguistics 471 and Sociology 471.)

474 Teaching English as a Second or Foreign Language I (3) Introduces major issues surrounding teaching ESL/EFL, including political implications of teaching ESL/EFL; introduction to second language acquisition; learner variables in language learning; traditional and innovative approaches to ESL/EFL; basic features of American English grammar necessary for teaching ESL. Prereq: Second year of a foreign language or consent of instructor. (Same as Linguistics 474.)

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

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

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

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

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

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

482 Major Authors (3) Content varies. Concentrated study of at least one of the most influential writers in British or American literary history: e.g., Donne, Pope, Shakespeare, T. S. Eliot, Tennyson, Faulkner, Lawrence, Baldwin, or Morrison. May be repeated. Maximum 6 hours.

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

484 Special Topics in Writing (3) Original writing integrated with readings usually taught by the course title author. Topics vary. May be repeated. Maximum 6 hours.

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

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

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

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

491 Foreign Study (1-15) Seeing, studying, and writing about drama as performed in London and Stratford-upon-Avon during the summer.

492 Off-Campus Study (1-15) Seeing, studying, and writing about drama as performed in New York City.

493 Independent Study (1-6) Tutorial in subjects not adequately covered in regular courses. May be repeated for a total of 6 hours credit.

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

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

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

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

ENGLISH EDUCATION (340)

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

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

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

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

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

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

ENTOMOLOGY AND PLANT PATHOLOGY (341)

306 Forest Protection (3) Biological, economic and legal consideration of fire, pathogens, insects, vertebrates, wind, and pollutants in the forest ecosystem. One or more all day or overnight field trips may be required. Prereq: FWF 311 or other instructors. 2 hours and 1 lab. (Same as Forestry 306.) Sp, E

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

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

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

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

EXERCISE SCIENCE (347)

100 Orientation to Exercise Science (1) Overview of discipline for those areas inquiring Exercise Science majors. Must be taken prior to admission to the Exercise Science major.

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

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

322 Fitness Activities (2) Methods of instructing and leading fitness activities, including jogging, exercise to music, aerobic activities, and Stretching Games. 1 hour lecture; 3 hour lab. Prereq: At least junior standing and progression to the major.

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

332 Applied Anatomy (3) Structure and roles of bones, joints, muscles, tendons, and fascias as they relate to exercise-related biomechanical principles. Prereq: Junior standing.

350 Disease and Injury: Epidemiologic and Demographic Perspectives (3) Disease and injury mortality and morbidity patterns, trends, differentials and causes are examined from perspectives of population-based sciences of epidemiology and demography. Completion of college course in statistics or mathematics is recommended.
380 Special Topics (1-3) Study in selected disciplinary or professional areas of Exercise Science. May be repeated. Maximum of 6 hours. Prereq: Progression to the major.

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

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

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


426 Exercise Science Practicum II (1-16) Supervised experience in exercise/fitness areas. May be repeated for a maximum of 10 hours. Satisfactory/No Credit grading only. Prereq: Progression to the major and consent of instructor. 2 hours and 1 lab.

480 Physiology of Exercise (3) Lecture and class dealing with functions of the body in muscular work. Topics include physiological aspects of fatigue, training, and adaptation to environment. 2 lectures and 1 lab. Prereq: Biochemistry and Cellular and Molecular Biology 230 or 440. (Same as Biochemistry and Cellular Molecular Biology 480.) Exercise Science majors, minimum cumulative 2.5 GPA.

490 Exercise Physiology/Fitness Internship (12-15) Full-time practicum in exercise/fitness at approved agency. Satisfactory/No Credit grading only. Prereq: 414, 442, 426, 480, progression to major, and consent of instructor.

493 Directed Independent Studies (1-3) Independent study in a specialized area with Exercise Science. May be repeated. Maximum 9 hours. Prereq: Consent of advisor and progression to the major. Satisfactory/No Credit only. Prereq or consent of instructor.

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

FINANCE (349)
Accounting 201-202, Economics 201, Finance 301, and Statistics 201 are Prerequisites to all 400-level Finance courses.

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

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


402 Special Topics in Finance (3) Junior and senior level finance seminar. Topics to be announced prior to offering. Prereq: 301.

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

422 Portfolio Analysis and Management (3) Portfolio theory and evidence of behavior of security returns with a view to determining rational investment policy. In- cludes measurement of risk and return, theories of portfolio evaluation and revision, capital market theory, and extensions of portfolio analysis. Prereq: 401, 421 and Management 303.

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


460 Advanced Topics in Financial Management (3) Contemporary issues in corporate finance, liquidity and current asset management, corporate growth and control, international financial management, and pension funds as institutional investments. Prereq: 450.

470 Risk Management and Insurance (3) Identification, measurement and decision making with regard to insurance-type risks facing the firm. Emphasizes handling these risks in the most cost-efficient manner. Prereq: 431.

471 Estate and Financial Planning (3) Process of estate accumulation, safekeeping, and distribution, with particular emphasis on impact of insurance and taxation. Prereq: 301.


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

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

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

FIRST YEAR STUDIES (355)

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

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

402 Peer Mentor Practicum (1) Peer mentoring of First Year Studies Students. Prereq: 401 and consent of instructor. S/N/NC only. May be repeated. Maximum 3 hours.

FOOD SCIENCE AND TECHNOLOGY (390)

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

240 Field Observations in Food Processing (2) Introduction to, observation of and familiarization with processing, packaging, quality control and distribution of different types of foods. Prereq: 140 or consent of instructor. 75-minute lab/hours.

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


340 Food Preservation (3) Principles, methods and equipment used for preservation of foods. Prereq: 140 and 240 or consent of instructor. 2 hours lecture and 1 lab.

401 Food Technology and Science Seminar (1) Individual project written in agreement with the instructor. Satisfactory/No Credit only. Prereq: Senior standing or consent of instructor.

410 Food Chemistry (4) Reactions of water, proteins, lipids, carbohydrates, minerals, enzymes, vitamins, and additives in foods. Prereq:Equivalent to Chemistry 201. Coreq: Biochemistry 310. 3 hours lecture and 1 lab.

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


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

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

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

460 Meat Products Technology (3) Carass characteristics of meat animals; structure and composition, cut identification, curing, freezing and cookery. Prereq: 140 or consent of instructor.

469 Meat Science Lab (1) Slaughter and processing methods for beef, pork, lamb and poultry. Coreq: 460. 1 lab.

470 Food Crop Products (3) Food products from plants emphasizing types, manufacturing systems, quality attributes and utility. Prereq: 340, and 3 hours biological science or consent of instructor. 2 hours and 1 lab. A, Sp.

480 Cereal Science and Bakery Products (3) Chemistry and technology of processing cereal grains; inter- actions of water, temperature, and ingredients in baked products. Prereq: 290, 310 and 340 or consent of instructor. 2 hours lecture and 1 lab.

490 Food Laws and Regulations (3) A comprehensive examination of the laws and regulations designed to preserve the safety, wholesomeness, and nutritional quality of the United States food supply with an in-depth analysis and discussion of precedent case studies and their impact on food law. Coreq: 420. 9 hours. All courses in Food Science and Technology will serve as an essential basis for understanding of material covered in this course. Prereq: 140; non-majors must obtain consent of instructor.

493 Independent Study (1-12) Specialized research in areas of interest under faculty direction. Field experience in supervised internship in the food industry. May be repeated; maximum 12 hours. Prereq: Consent of instructor. F grades.
495 Food Processing System Analysis and Evaluation (3) Design and evaluation of a food processing operation to produce a safe and acceptable quality food product. Prereq: 310, 320, and 340 or consent of instructor.

FOREIGN LANGUAGE/ESL EDUCATION (394)

455 Teaching of Foreign Language, Grades 7-12 (3) Instructional methods, lesson planning, peer-teaching; materials for teaching Foreign Language and culture; evaluation techniques. Required for certification in modern foreign languages. Prereq: Completion of course near completion of foreign language hours for certification and admission to Teacher Education Program.

FORESTRY (396)

100 Forests and Forestry in American Society (3) Introductory course examining the role of forests in shaping American culture and society and exploring the evolution of the forestry profession in the North America.


306 Forest Protection (3) Same as Entomology and Plant Pathology 306. Prereq: 303 or consent of instructor.

314 Economics of Forest and Wildland Resources (2) Basic principles of forest resource economics, microeconomic applications in forestry; non-market valuation and analysis; financial analyses of private and public forest resource investment and management decisions. Prereq: Economics 201, or consent of instructor.

315 Forest Ecology (3) Ecological interactions in forests among tree species, other plant and animal species, and their environment. Forest ecosystem classification; energy, nutrient, and hydrologic cycles; site quality. Perturbations and growth, survival and forest composition; forest succession. Fire ecology. Regeneration ecology through establishment and stand dynamics. Physiological ecology, ecological strategies, and adaptations of trees. Prereq: FWF 311. 2 hours and 1 lab.

321 Wildland Recreation (3) Philosophical foundation of recreation; planning, development, and management of forest recreation resources; interpretation of forest resources. Overnight weekend field trips may be required. Prereq: English 102 and Speech 210 or 240 or consent of instructor.


323 People and Forest Practices (2) Examination of how people perceive and react to forest management at a large scale and are affected by forest management practices. Case studies and field applications will concentrate on the wide variety of linkages that exist in society among people and forests. Application of basic skills of collaborative problem solving will be emphasized. Overnight weekend field trips required. Prereq: Coreq: 305, 306, 322, 324, 326, 329 and 330.

324 Forest Resource Analysis (2) Growth and yield prediction; financial analysis of forest management alternatives; incorporating computer simulation, risk and uncertainty, investment decisions, goal setting under multiple use concepts; valuation and appraisal of forest uses. Prereq: 314, Coreq: 305, 306, 322, 324, 326, 329, 330 Sp.


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

332 Wood Identification (1) Cell structure and arrangement as a tool for species identification; microscopic and hand lens identification of important commercial woods; drawbacks, advantages, laboratory procedures for making temporary slides for microscopic examination; student use of reference collection of wood samples supervised. Day field trip may be required. Prereq: Forestry, Wildlife and Fisheries 311 or consent of instructor. Coreq: 331 for Forestry majors. Sp.

415 Forest Conservation Workshop (1-3) How forest biology, ecology and management relate to conservation issues, how current conservation issues can be integrated into classroom work and student projects. Environmental education strategies. Prereq: Consent of instructor. May not be taken by forestry or wildlife and fisheries majors. May be repeated. Maximum of 3 hrs. Su, F.

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

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

422 Forest and Wildland Resource Policy (3) Policy formulation; criteria for policy determination; forest and wildland law and regulation; theory of conflict resolution; formal and informal resolution. Prereq: Senior standing or consent of instructor.

423 Wildland Recreation Planning and Management (3) Planning processes, master and site planning, site design projects; management strategies, methods of visitor and recreation site management; case studies; Weekend field trips may be required. Prereq: 321 and Junior standing in Wildland Recreation concentration, or consent of instructor. 2 hours and 1 lab.

431 Forest Adhesives and Glued Wood Products (2) Theory and practice of adhesive bonding; study of the wood substrate-adhesive interface for bonding; principles of adhesion; wood adhesives; gluing of solid wood parts; production and quality assurance in wood adhesive systems. Laboratory manufacture and/or testing of adhesives, adhesive bond strength and glued-wood product performance; day field trips may be required. Prereq: 331 and 332, or consent of instructor. 1 hour lecture and 2 hour lab.

434 Wood Processing and Machining (2) Processing of wood including primary log breakdown and secondary processing into major products. Fundamentals of machining technology for major types of cutting operations including sawing, boring, planing, veneer cutting, and laser machining. Day field trip may be required. Prereq: 331 and 332, or consent of instructor. 1 hour lecture and 2 hour lab.

435 Wood Drying and Preservation (2) Theory and practice of adhesive bonding; study of the wood substrate-adhesive interface for bonding; principles of adhesion; wood adhesives; gluing of solid wood parts; production and quality assurance in wood adhesive systems. Laboratory manufacture and/or testing of adhesives, adhesive bond strength and glued-wood product performance; day field trips may be required. Prereq: 331 and 332, or consent of instructor. 1 hour lecture and 2 hour lab.

436 Wood Drying and Preservation (2) Theory and practice of adhesive bonding; study of the wood substrate-adhesive interface for bonding; principles of adhesion; wood adhesives; gluing of solid wood parts; production and quality assurance in wood adhesive systems. Laboratory manufacture and/or testing of adhesives, adhesive bond strength and glued-wood product performance; day field trips may be required. Prereq: 331 and 332, or consent of instructor. 1 hour lecture and 2 hour lab.

456 Forest Inventory (1-6) Supervised experience in department-approved inventory project and the field evaluation. The student is responsible for field placement. One credit per two weeks of full-time field experience. Prereq: Junior standing, consent of instructor.

469 Internship in Forestry (1-6) Supervised experience at department-approved employment location arranged by the student. Internship learning objectives must be pre-approved by the advisor/instructor and the field supervisor, and the final report required. One credit per two weeks of full-time supervised field experience maximum. Prereq: Junior standing, consent of instructor. May be repeated. Maximum 6 hours.

FORESTY, WILDLIFE AND FISHERIES (398)

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

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


311 Dendrology and Silvics of North American Trees (3) Identification, classification and nomenclature of important North American trees and woody shrubs; forest measurements; silvical characteristics of trees and stands as the basis for the practice of silviculture. Day-long field trips may be required. Prereq: 1 year of Botany or Biology. 2 hours and 1 lab. F.

312 Principles of Silviculture (3) Principles for treating forest stands to achieve selected objectives. Prereq: Chemistry 100, Coreq. PSS 210, 311, and (for Forestry majors) 313. 2 hours and 1 lab. F.

313 Measurements and Sampling (2) Measurement techniques and sampling methods for vegetation; estimates of annual population growth; monograph, and photo use. Prereq: Statistics 201, Agriculture and Natural Resources 290, Mathematics 125. Coreq: FWF 312, 1 hour and 1 lab. F.

317 Principles of Wildlife and Fisheries Management (3) Ecological relationships of wild animals with other animals and their habitats. Biological, social and economic aspects of their management. Prereq: 211 or 250, Statistics 201, 290, Mathematics 125, Chemistry 100 and Biology 230. F.

410 Wildland Habitat Evaluation and Management (3) Ecological relationships between wildlife and their habitat. Evaluation, modeling, and management of wildlife habitat. Effects of land-use practices on wildlife habitat. Weekend field trips required. Prereq: 317 or consent of instructor. 2 hours and 1 lab. F.

412 Managing Natural Resource Organizations (3) Human, bureaucratic and managerial factors influencing the effectiveness of natural resource organizations. Alternative stakeholder and public involvement objectives, strategies and mechanisms including client-customer relationship and adversarial conflict resolution, proactive collaborative problem solving and alliance building. Prereq: 317 or consent of instructor. (Formerly: 211, 317 and Junior standing) 2 hours and 1 lab. Sp.

416 Planning and Management of Forest, Wildlife and Fisheries Resource (3) Integrated forest and fisheries resource management through developing land management plans and analyzing case studies including conflict resolution. Prereq: Senior standing. 1 hour and 2 labs. Sp.
420 International Natural Resource Issues (2) Identification and analyses of issues regarding forestry, wildlife, fisheries, and associated natural resources beyond U.S. borders. Federal, local, national, and international impacts and policies impacting natural resources at the international level. Cases: Northern Europe, Latin America, Indonesia, and Africa. F,A

FRENCH (405)
111-112 Elementary French (3,3) Language Laboratory required. Must be taken in sequence. Not available to students eligible for French 150. E

150 Intermediate French Transition (3) Prereq: Two years of high school French and a placement score below the level required for admittance to French 211. Since 150 is a review of elementary French, students who receive credit in this course may not also receive credit for any other level French course and therefore also forfeit the six hours of elementary language credit awarded through placement examination. For elective credit only.

199 French Language and World Business (2) The course will examine the importance of foreign trade at the local, state, and national levels. An interdisciplinary team of faculty from the colleges of Business and Arts and Sciences will provide an overview of the value of language skills and international cultural awareness in world business. Restricted to students majoring in the Language and World Business major concentration. See the Director for further information. F

211-212 Intermediate French (3,3) Prereq: 150 or 112 or Departmental Placement Exam. Must be taken in sequence. Students who place in 200-level courses from high school will receive six hours of elementary French credit. E

217-218 Honors: Intermediate French (3,3) For students of superior ability in French. Incoming freshmen admitted on basis of diagnostic test, high school average, and performance on ACT. Class held to a maximum of 15 for individual attention. Students follow enriched program with emphasis on speaking ability and reading, including literary selections. Students with a grade of A in 211 may enter 218 with permission of instructor. Credit for 300 given to students receiving a grade of A or B in the course. F, Sp

300 Transitional Grammar Review and Reading (3) For students who have completed the intermediate level sequence. Students interested in additional preparation in reading comprehension, vocabulary acquisition, and key areas of grammar. Prereq: French 212 or equivalent or appropriate score on French placement test. May not count toward the major or minor.

301-302 Elements of French for Upper Division and Graduate Students (3,3) Elements of language, elementary and advanced readings. Open to graduate students preparing for language examinations, and upper division students desiring reading knowledge of the language. Undergraduate credit only. Not for credit for those having had 111-112 or equivalent. No auditors.

333 Intermediate Composition and Grammar (3) Emphasizes writing skills. Review of major grammatical points in French. Prereq: French 212, 218, French 300 or permission of instructor.

334 Intermediate Conversation (3) Emphasizes speaking skills. Further review of French grammar. Required of all majors. Prereq: French 212, French 218, French 300 or permission of instructor.

345 French for Business (3) Contemporary French language as it applies to business transactions. Understanding and composing business letters; oral communication in French; career and cultural elements of French business practices. Either 334 or 345 may be applied toward the major but not both. Prereq: 333 or consent of instructor.

351-352 History of French Literature (3,3) Chronological view of French literature in relation to the specific historical environment in which it has flourished. Prereq: 333 or 334 or 345 or permission of department.

400-401 Consecutive and Simultaneous French-English and English-French Translation (3,3) Consecutive Translation to and from English. Introduction to simultaneous translation to English. 401-Simultaneous Translation to and from French. Training of students with good knowledge of French for consecutive and simultaneous translation from French into English, and vice versa, on a variety of subjects such as business, politics, science. Prereq: 334, 345 or equivalent. Preferably taken in sequence.

410 Medieval French Literature (3) Major representative works of Medieval French literature. Texts in modern French. Prereq: a 300-level literature course. Writing emphasis course. (Same as English 410.)

411 French Literature of the 16th Century (3) Highlights of 16th-century French literature. Excerpts from Rabelais and Montaigne; readings of poems from the writers from Lyon and members of the Pleiade. Writing emphasis course. Prereq: a 300-level literature course.


413 French Literature of the 18th Century (3) Major works of the Enlightenment. Writing emphasis course. Prereq: a 300-level literature course.


416 Survey of Francophone Literature (3) Examination of French literature outside metropolitan France: particularly Africa and the Caribbean. Writing emphasis course. Prereq: a 300-level literature course.

420 French Cinema (3) The French cinema from its earliest days through the New Wave directors. Prereq: a 300-level literature course. Can be applied to major. Writing emphasis course. (Same as Cinema Studies 420.)

421 Phonetics (3) Foundation in the science of phonetics. Practical exercises and individual performance. Graduate credit available to students majoring in a Romance language. Prereq: French 333 or 334 or 345 or permission of department.

422 Advanced Grammar (3) Improving one’s written French by studying basic and more refined structures of the language. Writing creative free-style compositions. Writing emphasis course. Prereq: French 333 or 334 or 345.

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

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

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

429 Romance Linguistics (3) Development of Classical Latin through Vulgar Latin into major Romance Languages. Writing emphasis course. (Same as Spanish 429 and Linguistics 429.)

430 Theatrical French (4) Comprehensive introduction to theatrical production and performance in French. Students collaborate in the creative staging of a French play and they actively participate in its public performance. Prereq: a 300-level literature course. Writing emphasis course.

431 Highlights of French Civilization (3) Survey of French civilization from the Gauls to World War II. Historical events, daily life, all forms of arts. Prereq: a 300-level literature course. Writing emphasis course.

432 Contemporary French Culture (3) Current French cultural issues placed in historical perspective with a comparative emphasis. In English; readings in French for majors. May apply toward French major. Writing emphasis course.

433 French and Francophone Women Writers (3) Works by women writing in French considered in cultural context. In English; readings in French for majors. May apply toward French major. Writing emphasis course. (Same as Women's Studies 433.)

434 Literature of Quebec (3) Survey of literature of Quebec as well as French literature connected with North America. Readings include explorer and missionary works, such as the Voyages of Champlain and the llam- mations of the Jesuits, as well as the literature of contemporary Quebec. Writing emphasis course. Prereq: a 300-level literature class.

440 Capstone Experience in French (3) Synthesizing senior colloquium and tutorial in which students reflect on the 2 hours later; these discipline from a multidimensional point of view. Writing emphasis course. Prereq: a 400 level literature course.

445 Advanced French for Business (3) Study of advanced contemporary French language and culture as they relate to business transactions. A comparative approach is used to explore differences and similarities between Francophone business culture(s) and those of North America and Japan. Students build upon their knowledge of business terminology while being sensitized to cultural differences and the dangers of simplistic stereotyping. Writing emphasis course. Prereq: 345 or consent of instructor.

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

491 Foreign Study (1-15)
492 Off-Campus Study (1-15)

493 Independent Study (1-15)

GEOGRAPHY (415)
101-102 World Geography (3,3) Selected topics and world regions, especially those with problems or situations of contemporary interest, to illustrate geographical points of view, concepts, and techniques. Must be taken in sequence.

108 Honors: World Geography (4) For freshmen and sophomores of superior ability who are interested in the geographical approach to important world problems and similar issues. Open to students who have received an "A" in Geography 101. Students may not receive credit for both 102 and 108.

131-132 Geography of the Natural Environment (4,4) Changes in and processes of the earth’s surface and lower atmosphere; their interaction to produce a world pattern of distinctive environments significant to humanity. Must be taken in sequence. 3 hours lecture and 2 hours lab per week. Open to students who have taken 330. Prereq: 131 is prerequisite to 132.

310 Introduction to Cartography (3) Properties, sources, uses, design and production of maps as tools for analyzing geographical phenomena. 2 hours lecture and 2 hours lab per week.

320 Cultural Geography: Core Concepts (3) Background and method of cultural geography; basic concepts and theories from landscape to cultures, cultures and the cultural landscape, cultural regions, cultural ecology, innovation and diffusion, cultural integration, and world patterns of cultural phenomena.

323 Behavioral Geography (3) Types of human behavior, such as travel, urban growth, commuting, residential mobility, and regional consciousness as they relate to distance, natural environment, and culture. (Same as Urban Studies 323.)

334 Meteorology (3) Dynamic atmosphere and resulting weather fronts. Nature of individual weather elements, their measurement and analysis over time and space.


345 Population and Environment (3) Global and local
of folk culture, emphasizing traditional material culture and rural settlement, with examples drawn from eastern North America and selected foreign areas. Prereq: 101-102 or 320 or consent of instructor.

423 Geography of American Popular Culture (3) Geographical study of regional variation in popular cultures, especially focused on youth cultures in the United States. Prereq: Geography 320 or consent of instructor. Writing emphasis course. (Same as American Studies 423.)

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

434 Climatology (3) General circulation system leading to world pattern of climates. Climatic change and modification, and interrelationships of climate and human activity. Prereq: 131-132 or 334 or consent of instructor. Prereq: 131 or consent of instructor.

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

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

439 Plant Geography of North America (3) Characteristics and distribution of major plant communities of Canada, the U.S., Mexico, and Central America. Relationships to climate, soil, fire, and human disturbance. Long-term history and future prospects. Prereq: 131-132 or course work in botany or consent of instructor.

441 Urban Geography of the United States (3) Concepts and theories concerning development and significance of systems of cities and urban morphology. Emphasis on the role of the United States in the world. Prereq: 101-102 or 340 or consent of instructor. (Same as Urban Studies 441.) Writing intensive.

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

449 Geography of Transportation (3) Examination of transportation systems, emphasizing their effects on trade, communication, migration, and development. Prereq: 340 or consent of instructor.

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

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

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

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

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

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

494 Undergraduate Research Experience (1-3) Supervised participation in active research projects. Prereq: Consent of department head. May be repeated once; maximum 6 hrs. S/N or letter grade.

497 Honors: Senior Thesis (3) Students develop under-graduate thesis topic under the guidance of a faculty advisor. Prereq: Open to second semester juniors and first semester seniors who have a 3.2 or better overall grade point average and permission of the thesis advisor.


499 Proseminar in Geography (3) Major themes in geography, especially trends over the past 40 years. Requires prior major or minor in Geography. Prereq: Senior standing and completion of at least 12 hours of major or minor requirements in geography. Writing-emphasis course.

GEOL 424

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

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

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

107 Honors: The Dynamic Earth (4) Laboratory and field emphasis to understanding physical processes, including the formation of rocks, plate tectonics, earthquakes, and landscapes. 3 lecture hours, 1 2-hour lab, and 2 field trips. Prereq: Grade of B or better in Geology 107, grade of A in Geology 101, or permission of the instructor. Students may not receive credit for both Geology 102 and 108.

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

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

202 Earth as an Ecosystem: Modern Problems and Solutions (3) Study of the earth as an integrated system between physical and biological processes. Focus is on human disturbances of ecosystems and the processes and pollution. No prerequisite. May not be applied toward Geology major.

203 Geology of National Parks (3) Geologic principles, processes, and earth materials responsible for the spectacular landscapes of national parks. Focus on interactions among internal earth processes, surficial earth processes, and human interactions. 3 lecture hours and an optional 2-hour lab trip. Prereq: Not open to graduate students. May not be applied toward the Geology major.

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

320 Paleobiology (3) Fossils and their uses in functioning of geology, paleontology, biostratigraphy, taphonomy, and evolution. Prereq: 102 or consent of instructor. 2 lecture hours and one 2-hour lab or field period.

330 Igneous and Metamorphic Petrology (3) Classification and properties of igneous rocks, the processes that produce them, and the tectonic environments in which they form. Prereq: 310, 2 lecture hours and one 2-hour lab.
340 Stratigraphy and Sedimentation (3) Stratigraphic principles and practices; physical sedimentary processes and interpretation of depositional environments. Prereq: 101-102 and 310. 2 lecture hours and one 2-hour lab or field work.

345 Geology of East Tennessee (1) Geology of the Southern Appalachians in Tennessee. Prereq: Completion of major core courses or consent of instructor. 1 lecture and field trip.

370 Structural Geology (4) Common geologic structures (folds, faults, cleavage) and their genesis. Laboratory includes map interpretation, cross-sections, projections, stereonets. Prereq: 101, 102; Mathematics 141-142; and Physics 135. Coreq: 310. 3 lecture hours and one 2-hour lab.


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


411 Optical Mineralogy (2) Laboratory course on the principles of optical mineralogy. Use of petrographic microscope to identify rock-forming minerals with applications to petrology and environmental mineralogy. Prereq: 310.

412 Elements of X-ray Diffraction (2) Laboratory course on principles and applications of X-ray diffraction. Phase identification, quantitative determination of mineral abundances in mixtures, and crystal structure determination. Prereq: 310.

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

421 Invertebrate Paleontology (4) Survey of invertebrate animals, with emphasis on skeletal structure and preservation, functional morphology, ecology, and stratigraphic distribution. Prereq: 320 or consent of instructor. 2 hours and two 2-hour labs.

431 Geological Engineering (3) (Same as Civil Engineering 431.)

440 Field Geology (5) Summer field course for advanced undergraduate geology majors and first-year graduate students in geology. Taught off-campus and requires the full time of the student. The course provides a synthesis of the major aspects of the geological sciences in a society context. Field stratigraphy, focused field projects, and applied solution of geologic problems. Prereq: Completion of other major core courses (310, 320, 330, 340, 370) and consent of instructor.

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

455 Basic Environmental Geology (3) Applications of the geological sciences toward a comprehension of the effects of geological processes on humans and the effects of human activities on the earth’s environments. Prereq: 101.

460 Principles of Geochemistry (3) Applications of chemical principles to geologic systems with emphasis on problem-solving techniques. Topics include phase diagrams, partitioning, and chemical principles for evaluating stabilities of mineral assemblages, aqueous solutions, and applications of radiogenic clocks and nuclides to geologic systems. Prereq: Chemistry 120-130, Mathematics 141-142; recommended Geology 330 or consent of instructor. 3 lecture hours and one 2-hour tutorial.

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

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

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

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

485 Principles of Hydrogeology (3) Physical principles of flow, flow equations, geologic controls, aquifer analysis, and introduction to transport processes. Prereq: 101, Math 141 and 142, Physics 133 or 134 or equivalent, or consent of instructor. (Same as Civil Engineering 485.)

486 Hydrogeology Laboratory (1) Application and development of hydrogeological principles in the field and laboratory, Prereq or Coreq: Geology 485, or Environmental Engineering 535, or consent of instructor.

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

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

GERMAN (433)

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

111 Language Laboratory (0)

112 Language Laboratory (0)

150 Elementary German Transition (3) This course is designed to prepare students for enrollment in German 201. Prereq: Two years of high school German and a placement score below the level required for admission to German 201. Since 195 is a review of elementary German, students who receive credit in this course may not also receive credit for any other 100 level German course and therefore also forfeit the six hours of elementary language credit awarded through placement examination.

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

201-202 Intermediate German (3,3) Must be taken in sequence. Prereq: 102 or 150 or appropriate placement exam score.

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

301-302 Introduction to German Literature (3,3) Prereq: 202 or equivalent. Need not be taken in sequence.

305 Readings in German (3) Topics in both literary and nonliterary fields. Students or student groups are encouraged to suggest topics for future courses. May be repeated twice with approval of department. Prereq: 202 or equivalent.

311-312 Conversation and Composition (3,3) Prereq: 202 or equivalent.

323 German Film (3) A study of the German cinema from the earliest days to the present. Writing-emphasis course. (Same as Cinema Studies 323.)

331-332 Elements of German for Upper-Division and Graduate Students (3,3) Elements of language, elementary and advanced readings and a final 10,000 word translation project. Open to graduate students preparing for language examination, and upper-division students desiring reading knowledge of the language. Undergraduate credit only. No credit for students who have completed 101-102. 332 may be repeated only once after 101-102. Prereq 331.

350 German-Jewish Topics in Literature and Culture (3) Selected themes, issues, figures, movements, and problems in the German-Jewish relationship in literature and culture from the 1750s to the present. Variable content. Available for both majors and non-majors. May be repeated with the approval of the department. Maximum 6 hours. (Same as Judaic Studies 350.)

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

411-412 Advanced Conversation and Composition (3,3) Prereq: 311-312 or equivalent or consent of department.

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

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

421 German Lyric Poetry (3) Prereq: 6 hours of 300 courses excluding 331-332 and courses in English translation, or equivalent.

422 German Drama (3) Prereq: 6 hours of 300 courses excluding 331-332 and courses in English translation, or equivalent.

423 German Narrative Prose (3) Prereq: 6 hours of 300 courses excluding 331-332 and courses in English translation, or equivalent.

424 German Literary Movements (3) Major periods in the development of German literature since 1750, with emphasis on the problems and pitfalls of periodization.

425 Introduction to Descriptive Linguistics (3) (Same as Russian 425, French 425, Spanish 425, and Linguistics 425.)

426 Methods of Historical Linguistics (3) Phonetics, distinctive feature analysis, sound change types, nature of sound change, principles of reconstruction and fundamental assumptions about language change through time. Non-phonological linguistic change, language families, Proto-Indo-European and other proto languages. Prereq: 6 hours of upper-division foreign language courses excluding courses in translation or graduate reading courses. (Same as Russian 426, French 426, Spanish 426, and Linguistics 426.)
HEBRew (458)
141-142 Elementary Modern Hebrew I, II (4, 4)
(Same as Asian Studies 141-142.)
241-242 Intermediate Modern Hebrew I, II (4, 4)
(Same as Asian Studies 241-242.)

HISTORY (462)
221-222 History of the United States (3, 3) 221-Settle-
m ent to 1877. 222-1877 to present. E
227-228 Honors: History of the United States (3, 3)
Consent of department required. Students will attend the appropria te 221-222 lectures and the designated honors discussion section.
241-242 Development of Western Civilization (3, 3)
Historical survey of the civilization of the western world, 241-Ancient world to 1715. 242-1715 to present. Writing-emphasis course.
247-248 Honors: Development of Western Civilization-
(3, 3) Consent of department required. Writing-emphasis course. Students will attend the appropriate 241-242 lectures and the designated honors discussion section.
255-256 Introduction to Latin American Studies (3, 3) 255-Latin American societies, special emphasis on dominant culture patterns, social changes, and impact of nationalism. 256—Pre-Colonial and Colonial periods through Independence era. 256—Latter 19th century and the Modern period. Writing emphasis course. (Same as Latin American Studies 251-252.)
261-262 A History of World Civilization (3, 3) Histori-
cal survey of world civilization. 261-Originis to 1500. 262-
1500 to present. Writing-emphasis course.
307 Honors: Introduction/Historical Problems (3) His torical analysis, philosophy of history, principles and tech niques of research emphasizing the roles of cli nates of opinion and frames of reference and the problems of evidence, interpretation and objectivity. Required of students working for honors in history. Prereq: Consent of the department.
310-311 The Ancient World (3, 3) 310-Development of Athenian democracy: its successes and failures; polis crisis of the fourth century B.C.; emergence of hellenistic civilization. 311-Originis of Roman imperialism and its consequences: militarism, empire, socioeconomic changes, constitutional crises, emergence of military and political autocracy.
312-313 Medieval History (3, 3) 312-Early Middle Ages:
300-1100. Formation of medieval society and institu tions. 313-Later Middle Ages 1100-1400. Height of medieval civilization and the transformation from indus trial to post-industrial society. (Same as Medieval Studies 312-313.)
314 Renaissance Europe (3) The period traditionally seen as a transition from the Middle Ages to the modern world. Interrelationship of cultural, social, economic, political and intellectual developments, with an empha sis upon historical interpretation.
315 Reformation Europe, 1500-1650 (3) The period during which Europe witnessed religious disunity, eco
omic dislocation and insecurity, political centralization, intellectual skepticism, the origins of modern science, war and the witch craze. (Same as Religious Studies 315.)
316 Early Modern Europe, 1650-1800 (3) Dynamic conflict of a search for order in an age of revolutions, seen in the continued push for political centralization, the impact of the scientific revolution, the intellectual flowering known as the “Enlightenment”, and the Eng
ish and French revolutions.
319 Modern Europe, 1750-1914 (3) Political, industrial and intellectual revolutions against traditions. Topics include the modern population explosion, urbanization, the political emergence of the middle class and the masses, nationalism, imperialism, rationalism and Ro
manism in social thought and politics. Writing-empha sis course.
320 Contemporary Europe, 1900-Prezent (3) The transformation from industrial to post-industrial society and the transformation of the European nation-state. Topics include war and peace, economic and political social instability; totalitarian control, decolonization; the impact of Freud, Einstein and exis
tentialism; welfare states; and, the problems of Euro pean unification. Writing-emphasis course.
450 Advanced Lodging Management (3) This course is designed to allow students to interpret operational problems currently occurring in the hotel industry in a case study, interactive environment. The student will analyze management opportunities and threats within a hotel and determine reasonable alternatives. Prereq: HRA 211, 326, 425, Mkt. 301.

470 Professional Experience in Restaurant and Food Service Management II (4) Supervised professional experience in selected restaurant and food service operations that builds upon first professional experience. Prereq: HRA 410, 420, HE 410. Coreq: HRA 485.


490 Management Experience in Restaurant and Food Service Management (9) Supervised managerial training with sponsoring restaurant and food service operations. Prereq: HRA 410, 420; HE 410; Coreq: HRA 485.


494 Directed Study: Hotel and Restaurant Administration (1-3) Individual student: faculty experience. Prereq: Junior and Senior Standing, consent of the instructor. Satisfactory/No Credit only.

497 Honors: Hotel and Restaurant Administration (1-3) Senior project. Prereq: Senior standing, consent of the instructor.

HUMAN ECOLOGY (520)

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

310 Design in Everyday Life (3) Aesthetic environment, planning and organizing interior spaces to meet personal and family needs. Relationship of materials and furnishings to architectural space.

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

445 Field Experience in Community-Based Programs (1-15) Placement in Home Economics-related programs or businesses. Includes seminar. May be repeated. Maximum 15 hours. Prereq: Consent of instructor. Satisfactory/No Credit only.

450 Special Topics: Human Ecology (1-3) Study in a selected area within the College of Human Ecology. Topics vary. May be repeated. Maximum of 6 credit hours.

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

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

HUMAN RESOURCE DEVELOPMENT (529)

161 Graphic Communications (3) Drafting as a means of communicating Orthographic, Orthomesh, and multiview drawing, conventional practices, pictorial techniques and applications, sheetmetal development, auxiliary views, and viewing techniques. May be repeated. Coreq: HRA 485.


201 Field Experience in Teaching (1-3) Field experience in public school Business Marketing, Family and Consumer Sciences, or Technology Education programs. May be repeated for a maximum of 3 hours. S/NC credit only.

210 Microcomputer Applications (3) Introduction to Microcomputer use and five software programs; operating systems, word processing systems, data base systems, spreadsheets, graphics, and design of a management information system; spreadsheet, word processing, and database. Prereq: Declared major in College of Human Ecology. Satisfactory/No Credit grading.

285 Introduction to Human Resource Development (3) This online course will be an overview of online instructional methodology; issues and problems associated with employee training and development; strategic training; needs assessment; learning theories and program design; transfer of training; career development; organizational development, employee empowerment and reorganization. F, Sp Prerequisites: HD 210.

300 Individuals, Society, and Technology (3) An overview of how technology and human innovation is used to meet needs and solve problems. Hands-on opportunities to experience and solve group and individual problems in a tools and material context.

305 Construction Systems (3) Introduction to construction technology, preparing for the construction project, designing and planning the project, managing construction activities, building the structure, installing systems, finishing the project, and closing the contract.

306 Manufacturing Systems (3) Introduction to manufacturing, engineering materials, primary manufacturing processes, secondary manufacturing processes, establishing a manufacturing enterprise, designing and engineering products, marketing the product, and performing financial activities.

320 Program Planning for Training, Development, and Education(3) An on-line course, the first in a four-course sequence, providing skills and knowledge in analyzing, designing, developing, implementing, and evaluating educational programs. Each student will plan an educational program. Prereq: HRD 210 or permission of the instructor.

325 Development of Instructional Resources (3) The second in a series of four online core courses designed to prepare instructors for the learning environment. It includes the design and development of instructional materials, the selection of teaching aids, and sequencing instruction based on the Instructional Systems Development (ISD) model. Each student will develop a training module. Prereq: HRD 320.

330 Instructional Strategies and Techniques (3) The third in a series of four online core courses focuses on methods and techniques of facilitating learning through application of communication theory, teaching and training concepts, and delivery methods and skills. Students will provide demonstrated competence in facilitated learning as a final course product. Prereq: HRD 320 and 325.

336 Teaching Technical Skills-Based Business Education (3) and Marketing Education (3) Methods and techniques for teaching Business Education and Marketing Education technology-based content that results in learner acquisition and refinement of technical skills.

350 Related and Applied Theory in Occupations (1-15) Applicants must show evidence of bona fide occupational experience compatible with State Plan requirements. Written theory tests and the submission of a comprehensive portfolio are used to award variable credit. Measures evaluated by technical specialist and departmental faculty. May be repeated. May be repeated. Maximum 15 hours. Satisfactory/No Credit only. Prereq: Junior standing and departmental approval.

351 Manipulative Skills in Occupations (1-15) Applicants must show evidence of bona fide occupational experience compatible with State Plan requirements. Written theory tests and the submission of a comprehensive portfolio are used to award variable credit. May be repeated. Maximum 15 hours. Satisfactory/No Credit only. Prereq: Junior standing and departmental approval.

352 Practicum in Industrial Education (1-3) Updating and upgrading experiences in nontraditional settings for technical teachers. May be repeated. Maximum of 6 hours. Satisfactory/No Credit only.

361 Graphic Reproduction Processes (3) Principles of printing, duplicating, photography, and other forms of graphic communication; includes laboratory experience in SLR camera applications, camera copy preparation, line and halftone photography, layout, stripping, plate-making, and offset presswork.

369 Plastic Technology (3) Characteristics and applications of thermoplastic and thermoset materials. Plastics production equipment related product design and processing of plastics. Prereq: 165 and admission to Teacher Education Program.


411 Managing Occupations Education Programs (3) Unique needs of instructors of occupational education: laboratory organization and safety; community resources and relations; advisory committees; operation of youth-clubs; and adapting instruction for special needs learners. Prereq: 320, 325.

415 Coordination Techniques (3) An online course with an overview of policy, procedures, roles, and responsibilities necessary for the analysis, design, development, implementation, and evaluation of a cooperative education program in vocational education. Prereq: HRD 210.

420 Introduction to Adult Education (3) Breadth of adult education activities and the diversity of adult lifestyles, including the practical professional practice apart from traditional instructional settings. A

421 Adult Education Program Design and Management (3) Processes of program development and special application to adult training programs.

422 Adult Development and Training (3) Application of adult development concepts to design and manage training programs for adults. Sp

423 Methods of Teaching Basic Business and Accounting (3) Instructional methodology for teaching secondary- and post-secondary-level basic business and accounting. Integrative strategies are introduced and developed.

430 Principles and Best Practices of Business Education and Marketing Education (3) This course provides an overview of how Business Education and Marketing Education is taught in today’s schools. Special attention is given to the national standards, state-based curricular frameworks, and learner competency expectations. An in depth exploration of both Business Education and Marketing Education instruction.

434 Teaching Conceptual and Human Skills-Based Business Education and Marketing Education (3) Methods and techniques for teaching Business Education and Marketing Education conceptual skills and human skills-based on subject matter content. Involves exploration of theoretical models, research and practical applications.
411 History of Writing and Manuscript Studies (3)

220 Introduction to Human Services (3) Focus on related societal values and contemporary issues in human service professions. Prerequisite: Admission to the Human Services Program. Credit only. F, Sp

330 Thinking About People (3) Development of thought processes, values, and attitudes toward human beings—those providing services as well as those receiving service. Prerequisite: Progression to the major.

391 Information Interpretation and Assessment (3) Information gathering and assessment for human services are essential to the effective delivery of Human Services. Prerequisite: Progression to the major or consent of instructor. F

400 Prefield Seminar (2) Prefield Seminar (2) Preparation for field sequence. Exploration of field/work settings within human service through in-class activities, field trips, and guest lectures; includes current topics and professional behavior. S/NC only. F, Sp

402 Human Services Methodologies II (3) Includes reality therapy, behavior modification, family systems, client-centered and rational emotive therapy. Discussion and role playing related to settings and skills that will be used during the field experience. Prerequisite: Progression to the major, 220, 330. Coreq: 440. F

430 Working Within The System (3) Capstone Experience. Context within which the need for human services arises and analysis of the process through which such services are provided. Prerequisite: Progression to the major, 330; senior standing or consent of instructor. Sp

440 Human Services Field Work (6) Human Services Field Work (6) Practical field experiences within an approved and supervised human services setting. Explores day to day activities within a human service organization. Develops specific helping skills; involvement in roles and function of human services profession; provides direct service in a supportive learning setting. For majors only. Prerequisite: Progression to the major, 380, 400, 420. S/NC only. F, Sp, S

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

491 Foreign Study (1-15) International study for encouraging reading. Undergraduate Credit Only. F, Sp, S

492 Off-Campus Study (1-15) Independent Study (1-15) Topics to be assigned. May be repeated. Maximum 6 hours.

INFORMATION SCIENCES (560)

101 Information Foundations (3) Nature of information; sources, values, creation, organization, transfer, uses in society. Issues: ethics, privacy, copyright, preservation, national information policy, equity of access. Information oriented careers. Undergraduate credit only.

102 Technologies for Information Retrieval (3) Principles, selection, and use of computer-based information management applications; software identification and task appropriate uses; telecommunications, utilities, and memory management systems; multiple operating systems and technology for national network connections; information services via computers. Undergraduate credit only.

300 Books and Related Materials for Children (3) Materials for children in leisure time or classroom activities; criteria for selecting books, magazines, recordings, films, and related materials; storytelling and other devices for encouraging reading. Undergraduate credit only.

350 Information Consumer (3) Information in society, information economy, knowledge/learning society; publishing and information providers: hosts, bulletin boards, news, information overload/anxiety, science fraud, gatekeeping concepts; updating systems, environmental scanning; information consumption techniques. Undergraduate credit only.

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

450 Writing About Science, Technology and Medicine (3) (Same as Journalism 450).

485 Introduction to Electronic Communications and Information Resources on the Internet (3) Exploration of worldwide information and communications resources including e-mail, newsgroups, and the world wide web. Discussion of information issues including copyright, censorship, privacy, and access.

486 Advanced Electronic Communications and Information Resources on the Internet (3) Exploration of advanced information resources issues including computer networks, communications issues, resources and tools including forms, scripting and search engines. Prerequisite: IS 485 or consent of instructor.

490 Information Environment (3) Generation, production, management, dissemination, and use of information sources and materials in society, information seeking and user behavior, information industry, economics of information products and services, technological and organizational change, information professions, and issues. E, Su-A

INSTRUCTIONAL TECHNOLOGY, CURRICULUM, AND EVALUATION (577)

203 Field Study in Education (1-3) Problems of persons in active service in the field, includes methods of teaching, curriculum materials, school-community relations, and school organizations. May be repeated. Maximum 6 hours.

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

324 Applications of Instructional Technology in Elementary and Middle School Teaching (1-3) Applications of instructional technology in the elementary and middle schools with an emphasis on computers. Exposure and experience with using educational software. May be repeated. Maximum 3 hours. Prerequisite: Admission to Teacher Education Program.

355 Introduction to Secondary Schools (3) Aspects of teaching in grades 7-12, including curricular program and roles and responsibilities of secondary school teachers and administrators. Prerequisite: Admission to Teacher Education Program.

404 Problems in Improvement of Instruction (1-3) Special conferences, workshops, or in-service programs. May be repeated. Maximum 6 hours. Satisfactory/No Credit grading only.

475 Utilization of Instructional Media (3) Basic communication process, need for instructional media, instructional development, selection and utilization of basic media, and basic teaching techniques. (Same as Library and Information Science 475). E

476 Instructional Media in Elementary Education (1) Basic operation of audiovisual hardware, selection and utilization of materials, and basic production skills needed for effective communication in the elementary classroom. Media Lab experience in production of AV software.

486 Introduction to Instructional Computing (3) Classroom use of computers, applications for teachers, overview of computer operation, and software for teachers of all grades. Prerequisite: Admission to Teacher Education.

INTERDISCIPLINARY PROGRAMS (581)

100 Selected Topics (1-3) May be repeated. Maximum credit 6 hours.

400 Selected Interdisciplinary Topics (1-12) Acceptable for major or minor credit in any Interdisciplinary Program with the consent of the Director of Interdisciplinary Programs and the respective chairperson. May be repeated for credit to a maximum of 12 hours. Letter grade or S/NC grading.

491 Foreign Study (1-15) Registration by permission of director of Interdisciplinary Studies.

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

493 Independent Study (1-15) Registration by permission of director of Interdisciplinary Studies.

INTERIOR DESIGN (582)

141 Introduction to Interior Design (2) Orientation to the profession; relationship to allied fields; contemporary development; philosophical approaches. Open only to majors in interior design or architecture or consent of instructor. F

171 Visual Studies (3) Classification and properties of two and three-dimensional visual organization; design principles; visual and spatial elements within simple and complex systems; role of movement in experiencing scale and volumetric space. Three hour studio. Open only to majors in interior design and architecture. Prereq: 141 or consent of instructor. Sp

200 Human-Environment Systems (3) Role of culture in defining environment; physical, social and conceptual aspects of human-environment systems; impact of environment on human behavior, feelings and values; mutual-casual properties of behavior-environment systems. (Same as Urban Studies 200.) F

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

231 Micro-Computers for Interior Design (3) Introduction to computer-based spreadsheets, drawing, desktop publishing, database and other software applications in various aspects of project design and management, including cost estimating and budget constraints, optimization of project cost, exergetic analysis, project management and information and resource management. Three hour studio. Prereq: Math 119 or consent of instructor. Coreq: 271. Interior Design majors only. Sp

251-252 Intermediate Japanese I, II (5, 5) (Same as Asian Languages 251-252.) Intermediate Japanese I, II. Prereq: 212 or equivalent. Tasso, the Quattrocento and the Cinquecento. Prereq: 212 or consent of instructor. (Same as Medieval Studies 241.)

261 Materials and Resources for Interiors (2) The development and application of materials and resources used in interior architectural space. Prereq: 171 or Arch 172 or consent of instructor. Sp


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

311 History of Interior Architecture (4) Interior architecture, decoration and decorative arts within cultural context, ancient through nineteenth centuries, emphasis on Italy, France, England, and American. Prereq: Art History 172 and 173 or consent of instructor. F

312 History of the Contemporary Interior Architecture (2) Interior architecture, furniture, design philosophies, nineteenth century roots for twentieth century developments, Europe and America. Design as influenced by movements in the fine arts, technological advances, cultural context. Prereq: 311 or consent of instructor. Sp


371 Intermediate Interior Design I (6) Studio problems of interior design; integrates and extends previous knowledge of working drawings, materials and sources, design methods, spatial organization and planning of micro and macro environments. Five hour studio. Prereq: 272 and Third year standing in interior design. F

372 Intermediate Interior Design II (6) Studio problems of intermediate complexity with emphasis on programmed design phases; in-depth analysis of current programming methods; integrates and extends previous knowledge of spatial organization and planning of micro and macro environments. Five hour studio. Coreq: 231, 371. Sp

400 Proxemics (2) Analysis of space and behavior; within a cultural context. Application to design and the design process. Examination of theoretical foundations and concepts from psychology, anthropology, and sociology. Prereq: Consent of instructor. F

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

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

420 Practicum for Interior Design (3) Supervised experience in a professional design firm; business practices, project management and design philosophy. Prereq: 360, 372 and consent of instructor.

431 Computer-Aided-Design (3) Integration between computer-aided-design process, database, spreadsheet software, cost estimating, construction drawings related to space planning, one hour lecture and two hour studio. Prereq: 231, 371. Coreq: 372 or consent of instructor. Interior Design majors only. Sp

464 Environmental Factors in Design (3) Human factors and associated research techniques and design methodologies related to the built environment.

471 Advanced Interior Design I (4) Non-residential studio problems of advanced complexity; integrates and extends previous experiences utilizing systematic design methodologies. Four hour studio. Prereq: 372, 420, Coreq: 400, or consent of instructor. F

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

480 Furniture Design (4) Human factors data applied to design of body support, task support, storage and systems, construction drawings and scale models; advanced millwork design; materials and manufacturing processes. Two hour lecture and four hour studio. Prereq: 471 or Arch 372 or consent of instructor. Sp

484 Needs Assessment and Design Programming (3) Systematic methodology and multidisciplinary research methods as a part of design problem solving experience. Appropriate for evaluating various environments: commercial, corporate, hospitality, institutional, and retail. Seminar. May be repeated for credit. Prereq: Knowledge of design and/or planning or consent of instructor.

491 International Study (1-15) Individual or group studio and/or study abroad; academic research, field investigation, or studio experiences. Determination of credit based on particular international experience. Prereq: Consent of all interior design faculty.

493 Directed Studies in Interior Design (1-4) Student or staff initiated research or studio investigation of special topic. Elective credit only. May be repeated. Maximum 8 hours. Prereq: Consent of instructor. E

494 Directed Studies in Environmental Design (1-3) Independent research in environmental design analysis. Prereq: Consent of instructor.

ITALIAN (584)

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

199 Italian Language and World Business (2) This course focuses on the language of the local, state, and national levels. An interdisciplinary team of faculty from the colleges of Business and Arts and Sciences will provide an overview of the value of language study and international cultural awareness in world business. Restricted to students majoring in Language and World Business. See the Director for further information.

211-212 Intermediate Italian (3,3) Sequence stresses reading, writing, listening and speaking Italian to prepare for upper division courses in the language. Must be taken in sequence. Language Laboratory required. F, Sp

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

341-342 Intermediate Grammar, Composition and Conversation (3,3) Comprehensive study of Italian grammar and composition, review of grammatical principles and their application in translation from English to Italian, both written and oral, exercises in free composition. Prereq: 212 or equivalent.

401 Dante and Medieval Culture (3) Introduction to the significance of this great Italian writer. Prereq: 212 or consent of instructor. (Same as Medieval Studies 401.)

402 Petrarach and Boccaccio (3) Prereq: 212 or consent of instructor. (Same as Medieval Studies 402.)

403 Literature of the Rinascimento (3) From Pucci to Tasso, the Quattrocento and the Cinquecento. Prereq: 212 or consent of instructor.

405 Modern Italian Poetry (3) Prereq: 212 or consent of instructor.

406 The Modern Italian Novel (3) Prereq: 212 or consent of instructor.

409 Directed Readings (3)

410 Italian Theatre (3) Survey of Italian theatre from Renaissance to present. Prereq: 212 or consent of instructor.

414 Italian Cultural Studies (3) This course will examine Italian culture as a set of practices characteristic of Italian society, from its mode of material production to its eating habits, dress codes, celebrations, and rituals. The objective of the course is to achieve a greater understanding of contemporary Italian culture.

421 Topics in Italian Literature and Cinema (3) Examination of Italian literature and cinema from 1930 to the present focusing on literary works translated into English and adapted into film. Objectives of the course are to investigate the relationship between literature and cinema and to achieve a greater understanding of Italian culture since 1930. Films will be shown in Italian with English subtitles. May be repeated. Maximum of 6 hours. (Same as Cinema Studies 421.)

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

491 Foreign Study (1-15)

JAPANESE (589)

151-152 Elementary Japanese I, II (5, 5) (Same as Asian Languages 151-152.)

251-252 Intermediate Japanese I, II (5, 5) (Same as Asian Languages 251-252.)

313-314 Japanese Literature in English Translation (3,3) (Same as Asian Languages 313-314.)

351-352 Advanced Japanese II, IV (4, 4) (Same as Asian Languages 351-352.)

451 Readings in Japanese Literature (3) (Same as Asian Languages 451.)

JOURNALISM (594)


For a comprehensive list of courses, please visit the university's official course catalog.
203 Editing (3) Methods and practice in judging news, editing copy, writing headlines and designing newspapers and magazines. Emphasis on precise word use and news display. Prereq: 200.

280 Communications Graphics (3) Principles and practice in the visual aspect of communications. Emphasis on graphic design, typography, illustration and photography, printing and production techniques and publication design. Lecture and laboratory. Prereq: 200 or 201, or consent of instructor.

290 Photojournalism (3) Principles and practice of photography as a creative tool of communication. Basic camera technique, darkroom work, historical and contemporary photojournalism. Lecture and laboratory.

310 Feature Writing (3) Skills of journalism for writing feature articles for newspapers, magazines and company publications. Critiquing of students' work in writing workshops, and writing short in-class pieces as assigned.


403 International Communications (3) Development and operations of world mass communications channels and analysis of media, media practices, flow of news throughout the world. Print and broadcast studies in terms of relevant social, political, economic, and cultural factors. Relation of communication practices to international affairs and understanding.

412 Opinion Writing (3) Analysis of editorial positions, practices, and pages. Writing editorials and columns for newspapers, magazines, and company publications, with emphasis upon study and use of rhetorical devices and logic. Prereq: 203 or consent of instructor.

414 Magazine Article Writing (3) Techniques of writing in-depth articles for mass circulation and specialized magazines. Organizing and presenting material, with attention to problems in areas such as business, science, agriculture, and the humanities. Prereq: 203 or consent of instructor.

416 Issues in Journalism (3) Topics vary. May be repeated. Maximum credit 6 hours. Prereq: Consent of instructor.

420 Print Media Management (3) Current business practice among print media, especially newspapers. Problems in management and production, and the outlook for new technologies. Prereq: 6 hours math and/or accounting, and senior standing.


432 Advanced Editing (3) Primary focus is on sensitivity to language and editing skills. Includes headline writing, layout and production. Prereq: 203.

444 Journalism as Literature (3) Study of writers from the 17th century to the modern era whose works have endured as both journalism and literature. An emerging genre called literary journalism will be examined as a means of cultural reporting with a personal narrative emphasis. Prereq: Consent of instructor.

450 Writing about Science, Technology, and Medicine (3) Writing workshop to analyze examples of successful science writing and write series of articles for general public based on scientific journals, news conferences, technical meetings and interviews. Prereq: Consent of instructor. (Same as Information Sciences 450.)

451 Environmental Reporting (3) Writing for news media on such environmental issues as strip-mining, water pollution, air pollution, allergens, nuclear power, fossil fuel power, and solid wastes. Students hear presentations by leaders and new experts in environmental science and reporting. Exemplary popular literature in environmental reporting is reviewed. Prereq: 203 for majors; consent of instructor for non-majors.

455 Issues in Science Communications (3) May be repeated. Topics vary. Prereq: Consent of instructor.

456 Science Writing as Literature (3) Survey of important science writing for the general public across the spectrum of science, engineering, and medicine. Works by such authors as Arthur C. Clarke, Stephen J. Gould and Richard Selzer will be analyzed for literary qualities in a quest to understand why some science writing succeeds. Prereq: Consent of instructor.


465 Women and Mass Media (3) Media effects on women. Media coverage and portrayal of women. Historical and current status of women in mass communication industries. (Same as Women's Studies 465.)


491 Foreign Study (1-15) Advance approval of hours and topics by advisor required for registration. May be repeated for maximum of 15 hours credit.

492 Field Experience (1-2) Approved internships and other supervised practice in journalism. May be repeated for a maximum of 4 credit hours. Prereq: 360, senior standing, and consent of instructor. Satisfactory/No Credit grading only.

493 Independent Study (3) May be repeated for maximum of 6 hours. Prereq: Consent of instructor.

JUDAICA STUDIES (595)
311 Ancient Hebraic Religious Traditions (3) Writing emphasis course. (Same as Religious Studies 311.)
312 Religious Aspects of Biblical and Classical Literature (3) Writing emphasis course. (Same as Religious Studies 312.)
320 Women and Religion (3) (Same as Religious Studies 320 and Women's Studies 320.)
322 Medieval Philosophy (3) Writing emphasis course. (Same as Philosophy 322 and Medieval Studies 322.)
350 German-Jewish Topics in Literature and Culture (3) May be repeated. Maximum 6 hours. (Same as German 350.)
369 History of the Middle East (3) Writing emphasis course. (Same as History 369.)
370 History of the Middle East (3) Writing emphasis course. (Same as History 370.)
381 Introduction to Judaism (3) Writing emphasis course. (Same as Religious Studies 381.)
383 History of Jewish Civilization I (3) (Same as History 383.)
384 History of Jewish Civilization II (3) (Same as History 384.)
385 Contemporary Jewish Thinkers (3, 3) Writing emphasis. May be repeated. Maximum 6 credit hours. (Same as Religious Studies 385.)
386 Voices of the Holocaust (3) (Same as Religious Studies 386.)
395 The Crusades and the Medieval Christian-Muslim Relations (3) (Same as History 395)
405 Modern Jewish Thought (3) Writing emphasis course. (Same as Religious Studies 405.)
425 Early Christian and Byzantine Art, to 1350 (3) Writing emphasis course. (Same as Art History 425 and Medieval Studies 371.)
426 Early Christian and Byzantine Art, to 1350 (3) Writing emphasis course. (Same as Art History 425 and Medieval Studies 371.)
431 Medieval Art of the West, 800-1400 (3) Writing emphasis course. (Same as Art History 431 and Medieval Studies 381.)

LATIN (257)
111-112 Beginning Latin (3,3) Must be taken in sequence. Not available to students eligible for Latin 150.
115 Latin Transition (3) This course is designed to prepare students for enrollment in Latin 251. Prereq: Two years of high school Latin and a score on the Latin placement exam below that required for admission to Latin 251. Since 150 is a review of elementary Latin, students who receive credit in this course may not also receive credit for any other level Latin course and therefore also forfeit the six hours of elementary language credit awarded through placement examination.
251 Intermediate Latin: Grammar Review and Readings (3) Prereq: 112 or 150 or placement through the Latin placement examination.
252 Intermediate Latin: Vergil's Aeneid (3) Prereq: 251 or equivalent.
351 Cicero and Sallust (3) Prereq: 252 or equivalent.
352 Roman Lyric Poetry (3) Poetry of Catullus, Horace, and the elegists. Prereq: 252 or equivalent.
414 Cicero and Techniques of Latin Prose Composition (3) For advanced students in Latin. Practice in prose composition, the writings of Cicero the model. Prereq: 351-352 or consent of instructor.
431-432 Selected Readings from Latin Literature (4) For advanced students in Latin. Oratory, historical writings and poetry of ancient Rome, in the original Latin. May be repeated for credit. Maximum 9 hours. Prereq: 351-352 or consent of instructor.
435 Medieval Latin (3) Selected readings from the Latin prose and poetry of medieval Europe. Prereq. Consent of instructor.

LATIN-AMERICAN STUDIES (600)
251-252 Introduction to Latin American Studies (3,3) (Same as History 255-256.)
311 Aspects of Luso-Brazilian Literature (3) (Same as Portuguese 311.)
313 Peoples and Cultures of Mesoamerica (3) (Same as Anthropology 313.)
314 Peoples and Cultures of South America (3) (Same as Anthropology 316.)
315-116 Aspects of Luso-Brazilian Literature (3,3) (Same as Portuguese 315-316.)
319 Caribbean Cultures and Societies (3) (Same as Anthropology 319 and African and African-American Studies 319.)
331 Introduction to Hispanic Culture (3) (Same as Spanish 331.)
333 Survey of Spanish-American Literature: 1700 to Present (3) (Same as Spanish 333.)
360 History of Latin America (3) (Same as History 360.)
361 History of Latin America (3) (Same as History 361.)
372 Geography of Middle America (3) (Same as Geography 372.)
373 Geography of South America (3) (Same as Geography 373.)
401 Cultural Plurality and Institutional Changes in Latin America (3) (Same as Spanish 401.)
402 Latin American Studies Seminar (3) (Same as Spanish 402.)
431 Topics in Literature and Language of the Portuguese Speaking World (3) (Same as Portuguese 431.)
432 Topics in the Literature and Language of the Portuguese Speaking World (3) (Same as Portuguese 432.)
456 Latin American Government and Politics I (3) (Same as Political Science 456.)
460 History of Brazil (3) (Same as History 460.)
461 Cuban Revolution in Historical Perspective (3) (Same as History 461.)
462 History of Mexico (3) (Same as History 462.)
463 Modern Latin American History in Film (3) (Same as History 463.)
465 Latin American Film and Culture (3) (Same as Spanish 465 and Cinema Studies 485.)
475 Studies in Latin American History (3) (Same as History 475.)
479 Disencheded Texts in Hispanic Literature (3) (Same as Spanish 479.)
491 Foreign Study (1-15)
492 Off-Campus Study (1-15)
493 Independent Study (1-15)

LEADERSHIP STUDIES (615)
200 Student Leadership Development (3) Designed to enhance the knowledge and skill of emerging student leaders and includes theoretical and experiential content related to leadership role, skill, and effectiveness. Satisfactory/No Credit grading only.

LEGAL STUDIES (617)
300 Mass Communication Research Methods (3) (Same as Communications 300.)
330 Law in American Society (3) (Same as Political Science 330.)
331 Sociological Research (3) (Same as Sociology 331.)
340 Women, Politics, and the Law (3) (Same as Women's Studies 340.)
344 Professional Responsibility (3) (Same as Philosophy 344 and Religious Studies 344.)
362 Roman Law (3) (Same as Classics 362.)
400 Mass Communication Law and Ethics (3) (Same as Communication 400.)
424 Psychology and Law (3) (Same as Psychology 424.)
430 United States Constitutional Law: Sources of Power and Restraint (3) (Same as Political Science 430.)
431 United States Constitutional Law: Civil Rights and Liberties (3) (Same as Political Science 431.)
442 Administrative Law (3) (Same as Political Science 442.)
451 Criminal Justice (3) (Same as Sociology 451.)
455 Society and Law (3) (Same as Sociology 455.)
469 Freedom of Speech (3) (Same as American Studies 469 and Speech Communication 469.)
470 International Law (3) (Same as Political Science 470.)
490 Language and Law (3) (Same as English 490.)
496 The Rhetoric of Legal Discourse (3) (Same as English 496.)

LINGUISTICS (623)
200 Language, Linguistics and Society (3) Introduction to linguistics with focus on language development and use of language by individuals and groups. Prerequisite: Completion of Freshman English or equivalent.
371 Foundations of the English Language (3) (Same as English 371.)
372 The Structure of Modern English (3) (Same as English 372.)
400 Topics in Linguistics (3) Content varies. May be repeated. Maximum 6 hours.
411 Linguistic Anthropology (3) (Same as Anthropology 411.)
423 The Development of Diachronic and Synchronic Linguistics (3) Development of Western linguistic thought from the Hebrews and Greeks through modern times. Readings from Boas, Sapir, Bloomfield, and others. Prerequisite: 9 hours of courses required for the Linguistics major (300-level or above) or consent of instructor.
425 Introduction to Descriptive Linguistics (3) (Same as French 425, German 425, Russian 425, and Spanish 425.)
426 Methods of Historical Linguistics (3) (Same as French 426, German 426, Russian 426, and Spanish 426.)
429 Romance Linguistics (3) (Same as French 429 and Spanish 429.)
430 Topics in Hispanic Linguistics (3) (Same as Spanish 430.)
432 The Structure of the German Language (3) (Same as German 432.)
436 History of the German Language (3) (Same as German 436.)
471 Sociolinguistics (3) (Same as English 471 and Sociology 471.)
472 American English (3) (Same as English 472.)
474 Teaching English as a Second or Foreign Language I (3) (Same as English 474.)
475 Teaching English as a Second or Foreign Language II (3) (Same as English 475.)
476 Second Language Acquisition (3) (Same as English 476.)
477 Pedagogical Grammar for ESL Teachers (3) (Same as English 477.)
485 Special Topics in Language (3) (Same as English 485.)
490 Language and Law (3) (Same as English 490.)
491 Foreign Study (1-15)
492 Off-Campus Study (1-15)
493 Independent Study (1-15)

LOGISTICS AND TRANSPORTATION (624)
301 Introduction to Logistics (3) Business logistics as a strategic area within the firm. Role of materials management and physical distribution, activities such as customer service, order processing and information flow, transportation, warehousing, purchasing, inventory, and system design and organization. Overview of supply chain operation.
302 Introduction to Transportation (3) Transportation and distribution as a vital part of the nation’s economic and social structure; U.S. transportation system; society's demands for mobility and policies of public and private sectors to meet those demands. Prerequisite: Economics 201.
400 Special Topic in Logistics and Transportation (3-6) Seminar in current problem area in logistics and transportation. Topic announced prior to offering. May be repeated once for additional credit provided topic is different. Maximum 6 hours. Prerequisite: Consent of instructor.
411 Logistics and Transportation Analytical Methods (3) Introduction to the principle analytical tools and models used in logistics and transportation; applications of analytical tools to logistics and transportation problems; using analytical methods to support negotiations. Prerequisites: Consent of instructor.
412 Global Logistics and Transportation (3) Multinational logistics strategy, import-export process, global sea, surface and air operations comparative transport systems analysis. Prerequisite: 301, 302.
450 Logistics Information Infrastructure Strategy and Design (3) An introduction to the use of information tools to design and create applications to support business processes in networked organizations. Students will be expected to design and use groupware, both static and dynamic web sites, relational-data base applications and e-commerce applications.
460 Seminar in Logistics and Transportation Strategy (3) Senior seminar in development of strategy for logistics and transportation in a supply chain perspective. Prerequisite: 411, Statistics 365, Senior Standing.
493 Independent Study (1-6) Directed research on subject of mutual interest to student and staff member. May be repeated. Maximum 6 credit hours. Prerequisite: Consent of instructor.
497 Honors: Executive-In-Residence in Transportation and Logistics (3) Student interaction with top-level logistics and transportation executives. Focus on the strategic decision-making process. Prerequisite: Consent of instructor.

MANAGEMENT (625)
203 Management Information Systems (3) Management of information concepts and applications. Using the computer as a tool to source, organize, and analyze data. Designing information systems to meet business needs. Emphasis on spreadsheets, database management systems, telecommunications, and information technology. Prerequisite: Open to College of Business Administration students only. E
301 Principles of General and Operations Management (3) Basic functions of general management and the concepts and techniques used in operations management. Includes lectures and discussion/problem solving sessions. Prerequisite: Statistics 201. E
311 Labor Relations and Collective Bargaining (3) American labor history, structure, and philosophy of contemporary unions, nature of collective bargaining, and dispute settlement.
321 Organizational Structure and Behavior (3) Behavioral processes in organizations; motivation, leadership, decision making, communication; behavioral consequences; group behavior, informal organizations, organizational conflict, politics, change and development. Prerequisite: 301, F, S
341 Operations Management I (3) Design of operations systems. Process and methods analysis and measurement, location and layout, project management, operational forecasting. Prerequisite: 301, Statistics 201, F, S
401 Business Strategy/Policy (3) Strategy and policy which affect the character and success of the total enterprise. Capstone course which integrates all functional areas in the formulation and implementation of strategy which will enable the organization to reach objectives. Major writing requirement. Prerequisite: Completion of business core courses and senior standing. Must be submitted to a business major. E
421 Total Quality Management (3) TOM is characterized by three main principles: customer focus, continuous improvement, and teamwork. Course focuses on the managerial perspective that is necessary to successfully implement and sustain a TQM philosophy, while briefly introducing its underlying statistical concepts. Prerequisites: Statistics 201, Management 301, F, S
431 Personnel Management (3) Theory, methods and issues pertaining to successful personnel management. Prerequisite: 301, senior standing, F, S,
432 Implementation and Evaluation of Personnel Programs (3) Methods of identifying, developing, implementing and evaluating various personnel programs. Prerequisite: 431, senior standing, S
440 Organizational Psychology (3) (Same as Psychology 440.)
441 Operations Management II (3) Planning and control of operations systems. Aggregate planning, scheduling systems, materials management. Prerequisite: 341.
471 International Management (3) Factors significant to the manager in international business activities.
492 Management Off-Campus Study (1-6) Satisfactory. No Credit grading only. Prerequisite: Consent of Instructor.
493 Independent Study (3) Readings, research, and special projects. Prerequisite: Consent of instructor. May be repeated one time for credit.
Courses of Instruction

MATHEMATICS (641)

100 Intermediate Algebra (3) First degree equations and inequalities, polynomial, rational, radical, exponential, and logarithmic functions. Prereq: Mathematics 123, 125 and Statistics 201.


110 Algebraic Reasoning (3) A course in the applications of elementary mathematics to life in the modern world. Includes applications in financial mathematics, consumer mathematics, and other areas. Students preparing to take 123-125 should take 110 instead of 119. Prereq: Two years of high school algebra and either satisfactory placement test scores or Math 100. This course should not be taken to remove an entrance requirement.

115 Statistical Reasoning (3) An introduction to probability and statistics without calculus. Not available for credit to students in the College of Business Administration. Prereq: Two years of algebra and one year of geometry or either satisfactory placement test scores or Math 100.

119 College Algebra (3) A review of algebraic functions, equations, and inequalities for students who satisfy the course prerequisites for 123 or 125 but whose placement test scores indicated additional preparation is necessary. Students who receive a grade of C or better in any course numbered 123 or higher (except for 201-202) may not subsequently receive credit for 119. Prereq: Two years of algebra and one year of geometry or either satisfactory placement test scores or Math 100. This course should not be taken to remove an entrance requirement.

123 Finite Mathematics (3) For students not planning to major in the physical sciences, engineering, mathematics, or computer science. Exponential and logarithmic functions, interest and annuities, linear systems and matrices. Prereq: Two years of high school algebra and one year of geometry in high school plus satisfactory placement test score, or 119 or 130.

125 Basic Calculus (3) A first course in the calculus of functions in one variable with applications to problems in business and other areas. Includes differential and integral calculus of algebraic, exponential, and logarithmic functions, with applications. Prereq: Two years of high school algebra plus one year of geometry in high school plus satisfactory placement test score, or Math 119 or 130.

130 Precalculus (4) Review of algebra, logarithmic, exponential, and trigonometric functions for students who satisfy the course prerequisites for 141 or 151, but whose placement test scores indicate additional preparation is necessary. Students who received a grade of C or better in 141 or 151 may not subsequently receive credit for 130. Prereq: Two years of algebra, a year of geometry, and half a year of trigonometry in high school. Students who did not study trigonometry in high school may take the noncredit course in trigonometry simultaneously with 130. Prereq: Consent of instructor.

141-142 Calculus I, II, (4,4) Standard first-year course in single variable calculus; expected for students of science, engineering, mathematics, and computer science. Differential and integral calculus with applications. Prereq: Two years of algebra, a year of geometry, and half a year of trigonometry in high school, plus satisfactory placement test scores, or Math 130.

147-148 Honors Calculus I, II, (4,4) Honors version of 141-142 for well-prepared students. Qualified students are selected to develop their mathematical reasoning abilities by working with other students having excellent high school mathematics backgrounds as mentors. Credit will not be given for both 147 and 141 or 152.

151-152 Mathematics for the Life Sciences I, II, (3,3) For students majoring in the Life Sciences. Does not serve as a prerequisite for 231 or 241. Topics include: descriptive statistics, linear regression, discrete probability, matrix algebra, difference equations, calculus, and differential equations. Emphasis on applications in the life sciences. Prereq: Two years of algebra, a year of geometry, and half a year of trigonometry in high school, plus satisfactory placement test scores, or Math 130. Credit will not be given for 141 and 152.

171 Computer Literacy for Mathematics (3) Introduction to computers, the internet, mathematical packages and programming for prospective mathematics majors. Prereq: Math 141. S/NC only.

200 Matrix Computations (1) Introduction to matrix computations, which form the basis for many applications of linear algebra. Prereq: Two years of algebra and one year of geometry in high school and satisfactory placement test score.

202 Probability, Statistics, and Euclidean Geometry (3) Statistics, probability, and Euclidean geometry, with an emphasis on measurement of central tendency and variation. Basic plan and three-space geometry, congruence and similarity, constructions with compass and straightedge, transformations, area, volume, and measurement. Turtle graphs. Prereq: Two years of algebra and one year of geometry in high school and satisfactory placement test score.


241 Calculus III (4) Calculus in two or more dimensions. Includes vectors, partial differentiation, multiple integration, and selected topics in vector calculus. Prereq: 142 or 148.

247 Honors: Calculus III (4) Prereq: 147-148 or invitation of the department.

251 Matrix Algebra I (3) First course in the algebra of linear equations and matrices. Includes Gaussian elimination, solving systems of linear equations, determinants, vector spaces, linear transformations, eigenvalues, and eigenvectors. Prereq: 141-142.

257 Honors: Matrix Algebra I (3) Prereq: 148 or invitation of the department.

299 Studies in Mathematics (1-3) May be repeated. Maximum 9 hours. Prereq: Consent of instructor.

300 Introduction to Abstract Mathematics (3) Algebra of sets, functions, relations, mathematical induction, algebraic structure of the real number system, order properties, and completeness. Prereq: Math 142.

323 Probability and Statistics (3) Discrete and continuous random variables; conditional probability, expectation, moment generating functions; law of large numbers, central limit theorem. Elements of statistical inference, estimation, and hypothesis testing. Prereq: 241 and 247.

341 Analysis I (3) Introduction to the theory of the real number system; limits of sequences, and functions of a real variable. Prereq: 241 (or 247) and 300.

351 Algebra I (3) Introduction to abstract algebra, emphasizing integers and polynomial rings. Prereq: 251 (or 257) and 300.

371 Numerical Algorithms (3) Development and application of fundamental algorithms for finding roots of equations, solving systems of linear equations, interpolation, fitting data using least-squares, differentiation, integration, and solving ordinary differential equations. Prereq: A high level programming language (e.g. 171 or Computer Science 102), 231, 241 (or 247), and basic matrix algebra (e.g. 200 or 251 or 257).

399 Studies in Mathematics (3) May be repeated. Maximum 9 hours. Prereq: Consent of instructor.
400 History of Mathematics (3) Development of major ideas in mathematics from ancient to modern times and the influence of these ideas in science, technology, philosophy, art, and other areas. Prereq: 251 (or 257) and 300. Writing emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

401 Mathematics and Microcomputers (3) Primarily for students seeking certification as mathematics teachers at the secondary level. The use of microcomputers to study concepts and problems in mathematics. Does not satisfy major requirements for a B.S. or M.S. in mathematics. Prereq: 141 or 147.

404 Applied Vector Calculus (3) Topics from multivariable and vector calculus including line and surface integrals, the divergence theorem and the theorems of Gauss and Green. Prereq: 241 or 247.

405 Models in Biology (3) Difference and differential equation models of biological systems. Prereq: 142 or 148 or 152.

411 Mathematical Modeling (3) Construction and analysis of mathematical models used in science and industry. Projects emphasized. Prereq: 231, 241, and 251 or 257. Writing emphasis course.

421 Combinatorics (3) Introduction to problems of construction and enumeration for discrete structures such as sequences, partitions, graphs, finite fields and geometries, and experimental designs. Prereq: 323 or consent of instructor.

423 Probability I (3) Axiomatic probability, multivariate distributions, conditional probability and expectations, methods of moment generating/characteristic functions. Laws of large numbers and the central limit theorem. Prereq: 300-level probability or consent of instructor.

424 Probability II (3) Elements of stochastic processes: Random walk, Markov chains and Poisson processes. Other topics as selected by the instructor. Prereq: 423.

425 Statistics (3) Derivation of standard statistical distributions including the t, F and X²; independence of sample means and binomial limit theorems; point and interval estimation, Bayesian estimates; statistical hypotheses, Neyman-Pearson theorem; likelihood ratio and other parametric and nonparametric tests; sufficient statistics. Prereq. 423 or consent of instructor.


443 Complex Variables (3) Introduction to the theory of functions of one complex variable, including residue theory and contour integrals. Prereq: 241 or 247.

445-446 Advanced Calculus I, II (5,3) Introduction to the theory of sequences, series, differentiation, and Riemann integration of functions of one or more variables. Prereq: 241 or (247) and 300, or consent of instructor.

447-448 Honors: Advanced Calculus I, II (3,3) Honors version of 445-446. Prereq: 241 or (247) and 300, or consent of instructor.

454 Advanced Linear Algebra (3) Advanced topics in linear algebra, including Jordan canonical form. Prereq: 251 or 257.

455-456 Abstract Algebra I, II (3,3) Introduction to algebraic structures such as groups, rings, fields, vector spaces and linear transformations. Prereq: 251 (or 257) and 300, or consent of instructor.

457-458 Honors: Abstract Algebra I, II (3,3) Honors version of 455-456. Prereq: 251 (or 257) and 300, or consent of instructor.

460 Geometry (3) Axiomatic and historical development of neutral, Euclidean, and hyperbolic geometry stressing proof technique and critical reasoning. Models of Non-Euclidean geometries. Prereq: 300, or consent of instructor.

461 Topology (3) Includes topology of line and planes, separation properties, compactness, connectedness, continuous functions, homeomorphisms, continua, and topological invariants. Prereq: 241 (or 247) and 300, or consent of instructor.

471 Numerical Analysis (3) Introduction to computation, instabilities, and rounding. Interpolation and approximation by polynomials and piecewise polynomials. Quadra- ture and numerical solution of initial and boundary value problems of ordinary differential equations, including stiff systems. Prereq: 371 or consent of instructor. (Same as Computer Science 471.)

472 Numerical Algebra I (3) Direct and iterative methods for linear system solution, and polynomial and piecewise polynomial interpolation. Prereq: 371 or consent of instructor. Recommended: 453. (Same as Computer Science 472.)

473 Industrial Mathematics (3) Modeling, analysis, and computation applied to scientific/technical/industrial problems. Prereq: 231 and familiarity with an operating system and a programming language (e.g., 171, 371, or C.S. 102).

490 Readings in Mathematics (1-3) Open to superior students with consent of department head. Independent study with faculty guidance. May be repeated. Maximum 9 hours. Prereq: Agreement of faculty mentor to supervise independent work.

495 Seminar in Actuarial Mathematics (1-3) Introduction to problems and problem solving techniques in actuarial sciences with emphasis on the mathematical logic included in the initial Actuarial Exams. Prereq: 241, 251, and 323.

497 Seminar in Mathematics (1-3) Topics will vary. Will require out-of-class projects and in-class presentations by students. Students must register for the number of credits based upon their attendance in a particular seminar. May be repeated. Maximum 9 hours. Prereq: Consent of instructor.

MATHEMATICS EDUCATION (642)

485 Teaching of Mathematics, Grades 7-12 (3) Prepar-ation of teaching plans, evaluation, materials for teaching mathematics; teaching simulation and directed ob-ervation included. Prereq: Admission to Teacher Education Program, F.

MEDICAL TECHNOLOGY (669)

410-411 Microbiology (4,4) Laboratory work in bacte-riology, mycology, and parasitology. Emphasis on pathogenic bacteria and fungi, their sources, methods of culture, techniques of identification, and evaluation of antibiotic sensitivity. Introduction to qualitative and quantitative chemical examination of feces and methods of identification of protozoa and helminth parasites of man.

420-421 Clinical Chemistry (5,5) Clinical aspects of biochemical analysis, including overview of principles and techniques of current interest. Includes blood gas analysis, protein electrophoresis, radioimmunoassay, and analysis of blood and other body fluids for enzymes, hormones, and other constituents of clinical interest, utilizing both automated and manual techniques, physical characteristics, detection, and use of short half-life radioactive materials for in vivo procedures such as radioimmunooassay which utilize radioisotopes.

430-431 Hematology and Clinical Microscopy (4,4) Principles, theories, and instrumentation related to qualitative and quantitative evaluation of cellular elements of blood and other body fluids; factors of hemostasis, quantitative analysis of body fluids, and examination of blood components. Prereq: Consent of instructor.


450 Clinical Serology and Immunology (2) Performance and interpretation of broad range of clinical serological and immunological methods with empha-sis on principles and clinical correlation. Formal lecture series included.

470 Orientation and Basic Techniques (1) For facilitation of students from campus to hospital community and clinical laboratory. Introduction to medical terminology, ethics, and health team concept. Orientation to basic techniques including procedures for collection and han-dling of specimens, principles of operation of many laboratory test equipment, review of laboratory math, and introduction to quality control procedures. Portions of course extend over entire clinical year.

480 Principles of Supervision and Education in Medi-cine (1) Seminars in basic principles of management, ethics, and health team concept and education methods. Com-prehensive examination covers entire course.

MEDIEVAL STUDIES (674)

201-202 Medieval Civilization (3,3) Introduction to basic themes in the medieval experience, approached from interdisciplinary points of view and including philosophy and religion, art and architecture, language and literature, social and political history. Writing-emphasis course.

261 Medieval Culture: Readings from the Early Middle Ages, 500-1000 (3) Critical analysis and interpretation of selected works from the early medieval period. Focuses on major types of literature produced during the period 500-1000 A.D., e.g., cultural, religious, rhetori-cal, lyrical, epic, biographical. Includes Augustine’s Con-essions, Beowulf, The Romance of the Rose, St. Gregory’s Life of St. Benedict, The Life of Charlemagne, etc. Writing-em-phasis course.

262 Medieval Culture: Readings from the Later Middle Ages, 1000-1300 (3) Critical analysis and interpretation of selected works from the later medieval period. Focuses on romantic, allegorical and mystical writings from the high and later Middle Ages, e.g., the Song of the Abelgeneurs, The Romance of the Rose, Bernard’s Commentary on the Song of Songs, Peter Abelard’s History of My Calamities. Should be taken in sequence with 261. Writing-emphasis course.

312-313 Medieval History (3,3) (Same as History 312-313.)

317 Medieval Philosophy (3) (Same as Philosophy 332 and Judic Studies 332.)

372 Northern European Painting, 1350-1600 (3) (Same as Art History 441.)

381 Medieval Art of the West, 800-1400 (3) (Same as Art History 431.)

382 The Art of Italy, 1250-1450 (3) (Same as Art History 451.)

401 Dante and Medieval Culture (3) (Same as Italian 401.)

402 Petrarch and Boccaccio (3) (Same as Italian 402.)

403 Seminar in Medieval Studies (3) Interdisciplinary treatment of selected topics. Content varies. May be repeated. Writing-emphasis course.

405 Medieval Literature (3) (Same as English 401.)

406 Chaucer (3) (Same as English 402.)

4605 Medieval French Literature (3) (Same as French 410.)

415 Medieval Architecture (3) (Same as Architecture 415.)

475 Ancient and Medieval Political Thought (3) (Same as Political Science 475.)

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

MICROBIOLOGY (684)

210 General Microbiology (3) General properties of bacteria and viruses including physiology, metabolism, genetics, applied bacteriology, pathogenesis, and immunity. May not be used as part of the major in microbiology. 2 hours and 2 labs. E

310 Introduction to Microbiology (3) Introduction to bacteria and viruses including physiology, metabolism, and genetics of bacteria and replication and expression of viral genes. Bacterial and viral pathogenesis, mecha-nisms of resistance to disease. Prereq: Biology 140. Coreq: Biology 240. F, Su

319 Introductory Microbiology Laboratory (2) Basic
110 Basic Military Science I (2) Formation and functioning of the American defense establishment and its relationship with American society, customs and traditions of the army, aspects of physical fitness and training; selected topics dealing with current world affairs; challenges facing the military in the future. Adven- ture training skills lab introduces mountaineering, rifle marksmanship, and optional field training exercises. Prereq: United States citizen; freshman or sophomore standing. Students with higher standing require consent of instructor. Letter grade only. F, Sp

200 Conducting Laboratory (1) A laboratory course designed to afford conducting opportunities for student conductors and to acquaint students with a variety of musical activities. May be repeated. Can be taken as elective credit by any student except those registered for MUS Ed 310 and 320. Letter grade only.

201 Field Experience in General Music (1) Observing and assisting in an approved elementary or middle school classroom. May be repeated. Maximum 2 hours. Satisfactory/No Credit only.

210 Class Woodwind Methods I (3) Structure, use, techniques of playing, care and repair of the oboe and bassoon in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. May be repeated. Letter grade only.

211 Class Woodwind Methods II (3) Structure, use, techniques of playing, care and repair of the flute and saxophone in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. May be repeated. Letter grade only.

220 Class Brass Methods I (3) Structure, use, techniques of playing, care and repair of the lower brass instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. May be repeated. Letter grade only.

221 Class Brass Methods II (3) Structure, use, techniques of playing, care and repair of the upper brass instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. May be repeated. Letter grade only.

230 Class Percussion Methods I (3) Ethnic instruments, marching percussion trends and concepts, percussion literature and training concepts, traditional and non-traditional percussion accessories, steel drums. Letter grade only.

240 Class String Methods I (3) Structure, use, techniques of playing, care and repair of the string instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. May be repeated. Letter grade only.

241 Class String Methods II (3) Structure, use, techniques of playing, care and repair of lower string instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. May be repeated. Letter grade only.

250 Functional Piano for Teachers (1) Practical piano skills for the general/vocal teacher who does not have a keyboard instrument as the applied principal. Transposi- tion, sight reading, and simple accompaniments. May be repeated once for credit. F, Sp

260 Eurhythmics (1) Principles and practice of eu- rhythmics as developed by Emile Jaques-Dalcroze. Prereq: Consent of instructor. May be repeated once for credit. Maximum 2 hours. Letter grade only. F, Sp

300 Music for Elementary Teachers (2) Singing, rhythm-  

MUSIC EDUCATION (707)
reading, and creative activities appropriate for the elementary grades. For elementary education majors only. Prereq: Admission to Teacher Education Program. Letter grade only. F

310 Conducting I (3) Basic skills of conducting; baton, time beating of traditional patterns, preparatory beat, cutoffs, cueing. Development of the left hand, fermata, subdividing. Mechanics of full score. Conducting "live" groups. Prereq: Consent of instructor or permission of instructor. Letter grade only.

320 Conducting II (2) Developing advanced baton technique. Multiple rhythms, modern beat patterns and their variations. Studying, analyzing and interpretation of the full score. Achieving complete physical control. Rehearsal techniques. Conducting "live" groups in advanced works. Prereq: Conducting I or consent of instructor. Letter grade only.

330 Music Methods for the Elementary School (3) Methods and materials for teaching music in the elementary grades. Primarily intended for music education majors. Prereq: Consent of instructor and admission to Teacher Education Program. Letter grade only. F

340 General/Vocal Music Methods (3) School methods and materials for teaching music in the elementary, middle and high schools. Intended for the instrumental music education major. Prereq: consent of instructor. Letter grade only.

350 Field Experience in Music Education (1) Prereq: Consent of instructor and admission to Teacher Education Program. May be repeated. Maximum 3 hours. Satisfactory/No Credit only. E

400 Student Teaching in Music (12) Full time teaching practice in an approved public school. Prereq: admission to the teacher education program and completion of all Music Education courses required for the Bachelor of Music degree (four-year alternative) in Music Education. Coreq: Music Education 401.

410 Senior Seminar (0) Issues related to the music teaching profession as experienced in Student Teaching. Coreq: Music Education 400.

420 Music Methods for the Junior High School and Middle School (3) Methods and materials for teaching vocal, instrumental, and general music at the junior high school or middle school level. Prereq: Admission to Teacher Education Program and consent of instructor. Letter grade only.

430 Music Methods for High School (3) Methods and materials for vocal and instrumental music at the high school level, including charting for the marching band. Prereq: Admission to Teacher Education Program and consent of instructor. Letter grade only. F

440 Marching Band Techniques (2) Functions, organization, and direction of a school marching band. Letter grade only.

441 String Orchestra Pedagogy and Rehearsal Techniques (2) Function, organization and direction of a school orchestra program. Letter grade only.

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

490 Special Topics in Music Education (1-3) Prereq: Consent of instructor may be repeated. Maximum 9 hours. Letter grade only. E

493 Independent Study in Music Education (1-5) Prereq: Consent of instructor. May be repeated. Maximum 9 hours. Letter grade only. E

MUSIC ENSEMBLE (708)

301-501 Woodwind Choir (1,1) May be repeated. Maximum 4 hours.

302-502 Jazz-Saxophone Ensemble (1,1) May be repeated. Maximum 4 hours.

303-503 Small Jazz Ensemble (1,1) May be repeated. Maximum 12 hours.

304-504 Jazz Ensemble (1,1) May be repeated. Maximum 12 hours.

305-505 Studio Orchestra (1,1) May be repeated. Maximum 12 hours.

306-506 Trombone Choir (1,1) May be repeated.

309-509 Tuba Ensemble (1,1) May be repeated.

310-510 Percussion Ensemble (1,1) May be repeated.

311-511 Marimba Choir (1,1) May be repeated. Maximum 4 hours.

312-512 Baroque Ensemble (1,1) May be repeated. Maximum 4 hours.

314-514 Brass Choir (1,1) May be repeated. Maximum 4 hours.

315-515 Chamber Music Ensemble (1,1) May be repeated. Maximum 12 hours.

316-516 Steel Band (1,1) May be repeated.

320-520 UT Singers (1,1) May be repeated. Maximum 4 hours.

330-530 Chamber Singers (1,1) May be repeated. Maximum 4 hours.

334-534 Saxophone Choir (1,1) May be repeated. Maximum 4 hours.

340-540 Opera Theatre (1,1) May be repeated. Maximum 4 hours.

350-550 Concert Band (1,1) May be repeated. Maximum 4 hours.

352-552 Symphonic Band (1,1) May be repeated. Maximum 4 hours.

353-553 Wind Ensemble (1,1) May be repeated. Maximum 4 hours.

354-554 Pep Band (1,1) May be repeated. Maximum 4 hours.

356-556 Laboratory Band (1,1) May be repeated. Maximum 4 hours.

359-559 Marching Band (1,1) May be repeated. Maximum 4 hours.

370-570 Symphony Orchestra (1,1) May be repeated. Maximum 4 hours.

380-580 Concert Choir (1,1) May be repeated. Maximum 4 hours.

383-583 Men's Chorale (1,1) May be repeated. Maximum 4 hours.

389-589 Women's Chorale (1,1) May be repeated. Maximum 4 hours.

MUSIC GENERAL (698)

140 Fundamentals of Performance (1-2) Private instrumental or vocal study, one or two half lessons per week. (1 hour credit - elective, secondary or minor; two hours credit - major.) This course is designed to prepare students for entrance exams, auditions, auditions. Cannot be used to satisfy applied music requirements at the principal level in the B.M. or the B.A. degree in Music. May be taken for a maximum of 4 credit hours per instrument. Admission by audition. A, B, C, NC. Requires payment of Applied Music fee. F, Sp

200 Solo Class (0)

301 Junior Recital (0)

310 Practical Experience in Arts Management (3) Arts management practicum with approved public school. Prereq: Admission to Teacher Education Program and consent of instructor. Letter grade only.

440 Marching Band Techniques (2) Functions, organization, and direction of a school marching band. Letter grade only.

441 String Orchestra Pedagogy and Rehearsal Techniques (2) Function, organization and direction of a school orchestra program. Letter grade only.

110 Introduction to Music in Western Culture (3) Developing listening skills and understanding of Western music from the ancient world through the 20th century. For non-music majors. Writing-emphasis course. E

115 Music in the United States (3) Explores musical traditions of the United States. For non-music majors. Writing-emphasis course.

120 History of Rock (3) Study and appreciation of rock music, its origins in blues and rock and roll, its development and cultural dimensions to the present. Writing-emphasis course. F, Sp

200 Introduction to Music Literature (3) Basic forms of music and accepted masterworks through chronological approach. For music majors and minors only. Sp


290 Introduction to World Musics (3) Survey of music of representative cultures from Africa, Asia, Oceania, and the Americas with a focus on music as sound and as part of the human condition. Also includes an emphasis on applying basic music terminology to developing listening skills.

310 Introduction to African-American Music (3) History of African music, blues, gospel music, and jazz with emphasis on Black artists and their contributions. (Same as African and African-American Studies 310.)

330 Women in Music (3) History of women in music from the Middle Ages to present as composers, performers, educators, and patrons. (Same as Women's Studies 330.)

340-341 Contemporary Trends in American Church Music I, II (2,2) Survey of sacred music in popular and contemporary style, emphasizing analysis and evaluative criteria. Must be taken in sequence. 340 includes theory and keyboard harmony appropriate to the style. 341 includes composition and arranging within the style. Prereq: Music Theory 210-220.

350 History of Jazz (3) Origin, development, and styles of jazz music and its exponents. Cultivation of special listening techniques. Writing-emphasis course. (Same as African and African-American Studies 350.) F, Sp

380 Music in World Cultures (3) Examines music from an ethnomusicological perspective focusing on musical performance and the interrelationships of music, culture, and daily life. The course surveys music from a variety of cultures through a series of case studies. Prereq: 210-220, or permission of instructor.

390 World Music (3) Basic attitudes and techniques of ethnomusicology. Survey of music cultures throughout the world, with emphasis on the Pacific, Near East, Asia, and Europe.

400 Music History Survey (3) History of music with emphasis on genres, style changes, and cultural forces. Western European tradition from 400 to 1900. Recommended as a review course for graduate students. Prereq: Consent of instructor.

410 Music History Genre (3) Topics vary. May be repeated for credit. Maximum 6 hours.

420 History of Opera (3) Dramatic, vocal, and orchestral elements in opera of Italian, French, and German schools. 1600-present.

430 Symphonic Literature (3) Survey of literature for orchestra from Baroque to the present, with emphasis on the evolution of the symphony.

450 Composer Seminar (3) Life and works of a single composer. Subjects vary.

460 Music Aesthetics (3) Nature of music and musical experience, sense perception and emotions, music, and role of artistic society. Aesthetic viewpoints of individuals and historical eras through selected writings. Writing-emphasis course.

480 Music in Christian Worship (3) Hymnody, liturgies, and liturgical music.

493 Independent Study (1-15) Prereq: Consent of department head. May be repeated for credit.

MUSIC INSTRUMENT (710)

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

320 Woodwind Literature and Pedagogy (3) Survey of woodwind solo and ensemble literature, including instructional materials and methods. Application of pedagogical procedures to individual instruction and performance; demonstration lessons by applied woodwind faculty and class members. Prereq: Consent of instructor.

330 Percussion Literature and Pedagogy (3) Survey of percussion solo and ensemble literature, including instruc-
304-350 String Literature and Pedagogy I, II (3,3) Survey of string techniques, issues, research and pedagogics; topical presentations by the applied string faculty and guidance in the development of the violin family of instruments and bows; survey of string literature, performances, and performance styles; application of historical, analytical, and pedagogical procedures to performance. Prereq: 340 and applied enrollment in strings at 300 level or above or consent of instructor.

490 Instrumental Conducting (3) Knowledge and skills in instrumental conducting; various periods and composers and relationship of different styles to the conductor’s art; musical analysis and practice in conducting. Prereq: Music Education 320 or equivalent.

MUSIC KEYBOARD (712)

110 Jazz Theory (2) Fundamentals of the jazz language, including terminology, chord symbols, chord/Scale, and improvisation. Non-credit, plus ear-training lab. Prereq: Music Theory 110.

120 Analysis of Jazz Styles (2) Individual improvisatory styles through analysis of their transcribed solos. Training and function of the ear in music. Transcription of solos from recordings and preparation of analysis. Prereq: 110.

130-140 Jazz Piano I, II (1,1) Harmonic language of jazz. Interpretation of chord symbols, formulae for voicing chords, chord progressions, and fundamental melody-playing and improvisation for right hand. Must be taken in sequence.

160 Introduction to Styles in Jazz Drums (2) Examination of major composers and performers who have contributed significantly to creation of principal styles of jazz drumming. May be repeated.

210-220 Jazz Improvisation I, II (2,2) Study and application of principles of improvisation, including nomenclature, chord progressions, chord-scales, patterns, melodic development, and tune studies. Prereq: 110.

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

320 Jazz Band Arranging (2) Arranging and scoring for the Big Jazz Band. Prereq: Consent of instructor.

410 Advanced Improvisation (3) Development of individual skills and solving individual problems in jazz improvisation. Prereq: 210 and 220.

420 Jazz Pedagogy (1) Methods and materials relating to teaching of jazz, designing and administering jazz programs, and rehearsal techniques for jazz ensembles. Prereq: Studio Music and Jazz major or consent of instructor.

MUSIC PERFORMANCE (713)

Prerequisites: By audition only. Music General 140 or equivalent.

103-203-303-403-503 Flute (1-4) May be repeated.

105-205-305-405-505 Oboe (1-4) May be repeated.

110-210-310-410-510 Bassoon (1-4) May be repeated.

115-215-315-415-515 Clarinet (1-4) May be repeated.

120-220-320-420-520 Saxophone (1-4) May be repeated.

125-225-325-425-525 Horn (1-4) May be repeated.

130-230-330-430-530 Trumpet (1-4) May be repeated.

135-235-335-435-535 Trombone (1-4) May be repeated.

140-240-340-440-540 Baritone (1-4) May be repeated.

145-245-345-445-545 Tuba (1-4) May be repeated.

150-250-350-450-550 Percussion (1-4) May be repeated.

155-255-355-455-555 Voice (1-4) May be repeated.

160-260-360-460-560 Violin (1-4) May be repeated.

165-265-365-465-565 Viola (1-4) May be repeated.

170-270-370-470-570 Cello (1-4) May be repeated.

175-275-375-475-575 String Bass (1-4) May be repeated.

176-276-376-476 Electric Bass (1-4) May be repeated.

179-279-379-479-579 Guitar (1-4) May be repeated.

180-280-380-480-580 Piano (1-4) May be repeated.


190-290-390-490-590 Organ (1-4) May be repeated.

294-394-494-594 Composition (1-3) May be repeated. Prereq: Music Theory 210 and 230, grade C or higher. Consent of instructor.

395-495-595 Composition with Electronic Media (1-3) May be repeated. Prereq: Music Theory 210 and 230, grade C or higher. Consent of instructor.

400 Ear Training Review (1) Review and reinforcement of anural and aural training skills. Prereq: Consent of instructor.

410 Ear Training Review (1) Review and application of harmonic and melodic dictation skills for graduate and advanced undergraduate students. Prereq: 240 or the equivalent. Required of entering graduate students with a deficiency in ear-training. Satisfactory/No credit grading only.

420 Orchestration (3) Advanced techniques in instrumental writing with emphasis on the scoring of the concert orchestra. To be taken by theory and composition majors. Prereq: Music Theory 210 and 230, grade C or higher.

430-440 Counterpoint, II, III (3,3) 430—Counterpoint in modal and tonal styles with emphasis on works of Palestrina and J.S. Bach. Prereq: 220. 440—Writing of contrapuntal forms of the 18th century and fugue analysis of works from the 18th through the 20th centuries. Prereq: 430 Music Theory 210 and 230, grade C or higher. 440: Music Theory 430, grade C or higher.

MUSIC TECHNOLOGY (717)

290 Sound Recording Techniques (3) Theory and application of tape recording and sound reproduction and reinforcement systems. Topics include room acoustics, audio measurements, microphones, studio and real-time processing, noise reduction, mixing, editing, monitors, system wiring, and maintenance.

340 Introduction to Computer Music Transcription (3) Exercise in notation, playback and publishing incorporating elements of word processing, graphic design, sequencing and page layout. Study of Music Instrument Digital Interface protocol as it applies to computer music work station design. Prereq: consent of instructor.

390 Sound Synthesis Techniques (3) Studio and real-time applications of synthesizers. Historical background, theories and concepts, equipment interface and usage, analysis of sounds and compositions. Prereq: 290 or consent of instructor.

MUSIC THEORY (714)

100 Fundamentals of Music (3) Theory and practice of basic elements of music. Writing-emboss emphasis course. F, S

110-120 Theory I, II (3,3) Materials of music including basic elements through second-year college level analysis. Exercises in analysis, composition, and improvisation of music with emphasis on common practice. Must be taken in sequence. Prereq: 110 - successful completion of Music Theory 110, grade C or higher.

130 Ear Training I (1) Development of proficiency in identifying and notating melodic, harmonic and rhythmic models. Includes computer lab. Must be taken concurrently with 110, A, B, C grading.

140 Ear Training II (1) Development of proficiency in identifying and notating melodic, harmonic and rhythmic models. Includes computer lab. Must be taken concurrently with 120.

210-220 Theory Ill, IV (3,3) Materials of music including advanced chords and analytical methods. Emphasis on the study of the literature of the Classic, Romantic, and Contemporary periods. Exercises in analysis, composition, and improvisation of music. Must be taken in sequence. Prereq: Music Theory 120, grade C or higher, or consent of instructor; 220 - Music Theory 210, grade C or higher, or consent of instructor.


310 Form and Analysis (3) Study and practice in analysis of forms of music from smallest structural units to large compound forms. Prereq: Music Theory 210 and 240, grade C or higher.

320 Instrumentation (2) Basic techniques in scoring for voice, brass, woodwind and string choirs and percussion. To be taken by music and music education majors. Prereq: Music Theory 210 and 230, grade C or higher.

400 Survey of Music Theory (3) Emphasis on harmonic practice of Baroque, Classic, and Romantic periods. Exercises in writing and analysis. Recommended as a review course for graduate students. Prereq: Consent of instructor.

410 Ear Training Review (1) Review and application of harmonic and melodic dictation skills for graduate and advanced undergraduate students. Prereq: 240 or the equivalent. Required of entering graduate students with a deficiency in ear-training. Satisfactory/No credit grading only.

420 Orchestration (3) Advanced techniques in instrumental writing with emphasis on the scoring for the concert orchestra. To be taken by theory and composition majors. Prereq: Music Theory 210 and 230, grade C or higher.

430-440 Counterpoint, II, III (3,3) 430—Counterpoint in modal and tonal styles with emphasis on works of Palestrina and J.S. Bach. Prereq: 220. 440—Writing of contrapuntal forms of the 18th century and fugue analysis of works from the 18th through the 20th centuries. Prereq: 430 Music Theory 210 and 230, grade C or higher. 440: Music Theory 430, grade C or higher.
540 Nuclear Medicine Technology (718)

Courses in this concentration are open only to qualified students who have completed the first three years of the Nuclear Medical Technology Curriculum, described in the College of Arts and Sciences curricula section of this catalog, and who have been admitted to the Nuclear Medical Technology Program at UTMC.

410 Physics for Nuclear Medicine (3) Nuclear physics, mathematics, and statistics. Survey of historic and current concepts in atomic and nuclear structure, interrelationships between matter and energy, nuclear reactions, nuclear stability, production of radionuclides, radionuclide generators, decay schemes, and charts used in nuclear identification and behavior prediction. Mathematics and statistics topics include basic arithmetic theories, mathematical manipulations, and applied technical mathematics for use in radio active decay equations, dose calculations and concentration, and dosimetry and shielding determinations. Graphing, counting statistics and other physical and chemical applications of mathematics in nuclear medicine are included. May not be substituted for Physics 471 or 472.

411 Nuclear Instrumentation (3) Course concerns non-imaging, imaging, and instrument quality assurance. Non-imaging topics include basic radiation detectors, their applications, functions, and limitations with overview of basic electronics, gas-filled detectors, statistics and counting, solid and fluid scintillation detection systems, semiconductor and instrument stabilization, and quality control. Imaging topics are instrumentation of imaging devices, including digital radiography, applications of principles and quality control. Quality assurance unit emphasizes function and maintenance requirements of nuclear instrumentation and associated practices, and statistical analysis of quality control data.

412 Radiopharmacy (2) Emphasis on basic chemistry and radiochemistry in nuclear radiopharmacy. Topics include radiopharmaceutical preparation and quality assurance, radionuclide production, and basic photographic film chemistry. Kinetics, biodistribution, and mechanisms of localization are also included, plus guidelines and regulations governing radiopharmacy management and operation.

415 Physics for Nuclear Medicine II (3) Continuation of 410 with focus on radiobiology and radiation safety. Radiobiology topics include interactions of radiation and matter, cellular and systemic responses to radiation, early and late somatic and genetic effects, biological effects of low level radiation, critical organ and dose calculations, and benefit versus risk factor. Radiation safety topics include exposure terminology, dose limit recommendations, ALARA philosophy, federal and state regulations, radiation monitoring equipment, and methods and techniques for safe patient handling.

420-430-440 Clinical Nuclear Medicine I, II, III (4,4,4)

Theories and applications of nuclear medicine methodologies. I—Patient care, central nervous system, endocrine, oncology, and gastrointestinal systems, I—hepatic and hepatobiliary system, genitourinary system, musculoskeletal system, non organ/tumor/inflammatory disease, cardiovascular disease, and nuclear medicine, III—single photon emission tomography, positron emission tomography, clinical quality assurance, pediatric nuclear medicine, radiopharmaceutical therapy, and management and administration of nuclear medicine programs.

425 Functional Diction for Singers (3) Comprehensive one-semester survey of singing diction in six languages: English, French, German, Italian, Latin and Spanish. Basic instruction in the International Phonetic Alphabet; development of basic diction skills; overview of diction styles and traditions in each language; survey of diction resources and reference materials. Suitable for Sacred Music and Music Education majors with a concentration in Voice and for graduate students in Choral Conducting. Does not fulfill deficiency requirements for graduate students in Voice or Accompanying.

450-460 Pedagogy I, II (2,1) 450-Concepts and approaches to teaching singing past and present for all ages of voices. 460-Vocal teaching materials: includes vocal and art songs used for examples. Performance practice.

490 Church Music Methods, K-12 (3) 410-German songs. 420-French, Italian, Russian, Scandinavian, Czecho-slovakian, British-American art songs. No graduate credit for students in the M.M. concentration in Vocal Performance.

700 Health Promotion and Disease Prevention (3) Both Systems, disease categories, and implications for disease prevention and promotion. Knowledge and application of these principles are emphasized in the care of adults in selected health care settings. 2 lectures, 3 labs, Coreq: or Prereq: 301, 304, 306.

304 Nursing Assessment and Wellness Promotion (4) Developmental, psychosocial, cultural, environmental, spiritual, family, and physical dimensions of health assessment. Collection, analysis, and application of assessment data in formulation of wellness-oriented nursing diagnoses and interventions for patients who seek health promotion and wellness. Evolution and expansion of the nursing role in wellness promotion and education. Laboratory assignments for development of nursing assessment skills. For RNs this course is prereq. to 330, 401, 411, 431, and 433. 3 lectures, 1 lab. F

305 Transitions to Professional Nursing (5) Builds on the knowledge base and experience of RNs in transition to professional nursing. Focuses on the conceptual foundations of nursing practice and issues in health care delivery. For RNs only. 4 lecture, 1 lab. Su

306 Health Deviation Concepts (4) Content related to the nursing process as applied to patients with physiologic and behavioral deviations associated with dysfunction in selected physiologic systems. Prereq: or Coreq: 301.

311 Foundations of Professional Nursing Practice (5) Emphasis on patient centered communication, therapeutic relationships, decision making, and critical thinking as key elements in the use of the nursing process. Clinical laboratory experiences provide opportunity for the applications of these processes in the care of adults in selected health care settings. 2 rec, 3 lab. Prereq: 201; Coreq: 319, 333, 341.

313 Introduction to Nursing Research (3) Language, types of research designs, methodological approaches, sampling, data analysis, and significance of findings. Evaluation of existing and ongoing nursing research studies. Prereq: 302 or 305 or consent of instructor. Sp

314 Wellness and Lifestyle (3) Models of wellness and holistic health within the framework of modern medicine, eastern philosophy, and recent discoveries about the interaction of mind and body. Biopsychosocial interactions of lifestyle and genetic risk factors for cardiovascular and malignant diseases, wellness potential, and potential longevity. Process of lifestyle changes will be facilitated by faculty. Open to undergraduate students in all colleges.

316 Health Deviation Concepts II (4) Continuation of 306 with emphasis on the nursing process as applied to patients with physiologic and behavioral deviations underlying or associated with complex and critical illnesses. Prereq: 301, 306.

319 Pathophysiology of Health Deviations (4) Application of physiological concepts to health promotion, maintenance and deviation in the care of adults in selected health care settings. 2 rec, 4 lab. Prereq: 301, 302, 304, 306 or RN status. Prereq or Coreq: 316.

320 Nursing of Adults (6) Didactic and clinical laboratory experiences related to nursing care of clients in early, middle and late adulthood with various health needs. Emphasis on the provision of planned nursing care for selected clients in a variety of settings. 2 lectures, 4 lab. Prereq: 301, 302, 304, 306 or RN status. Prereq or Coreq: 316, 330 or consent of instructor. Sp

333 Health Assessment (3) Theory and laboratory practices for systematic assessment of health status, including history taking and performance of physical assessment skills. For RNs this course is requisite to any clinical course beyond 305 Transitions. 2 lecture, 1 lab. F

341 Health Promotion (3) Introduction to health promotion concepts and nursing interventions for health promotion and disease prevention. F

351 Pharmacology I (2) Biochemical and pharmacological effects of therapeutic drugs on the human body.
Basic concepts of drug action and interactions. Major drug classifications. Prereq: Chem 100-110, and at least 6 semester hours of Anatomy and Physiology. Sp

361 Health Maintenance and Restoration Across the Life Span (5) Focus on health maintenance and restoration in nursing practice with children or adults experiencing common occurring acute or chronic illness. 2 lec, 3 lab. Prereq: N311, N319, N333, N341, or RN status. Coreq: N311, N319, or nursing students. Credit only. Letter grade only.

381 Professional Leadership Issues I (2) Focus on concepts and strategies for management and leadership as a professional nurse. Emphasis on problem identification, individual responsibility, decision making, communication, confrontation, collaboration, conflict resolution, coordination, delegations, supervision, and team building to support safe client care. Prereq: N311, N334 or RN status. Letter grade only. Credit only.

382 Health Promotion and Maintenance in Community (4) Focus on nursing care of at risk populations. Design and implement interventions to promote and maintain health. Includes assessment of socio-cultural values, environmental factors, health education, and community resources. Prereq: 311, 319, 333, 341, or RN status. Co or Coreq: 351, 356. 2 lecture, 2 lab. F, Sp

401 Family Health Nursing (6) Nursing needs of families in health and in illness. Provision of comprehensive care to family. Applications of the increased awareness of phases of family development. Application of theories of human growth and development, family dynamics, and crisis intervention to nursing care to families experiencing normal pregnancy and child birth and to those experiencing such health problems or complications as high risk, prematurity, loss of infant, parent/child relationships, or gynecologic disturbances. 3 lecture, 3 lab. Prereq: All 300 level clinical nursing courses or RN status. F, Sp

403 Health Promotion and Maintenance in Child Bearing Family (6) Nursing practice for promotion, maintenance, and restoration of reproductive health. Emphasis on therapeutic relationships with childbearing families for long-term care and discharge planning, health care and lifestyle. 3 lec, 2 lab. Prereq: All required 300 level courses or RN status. F, Sp

405 Professional Nursing Seminar (2) Critical examination of legislative, legal, ethical, social, and educational issues that influence nursing practice. Apply the nursing process to clients and groups in a variety of acute, extended care, and rehabilitation facilities. 3 lectures, 3 lab. Prereq: All 300 level clinical nursing courses or RN status. Sp

406 Pharmacology II (5) Continuation of 351 with emphasis on nursing responsibilities in the safe and effective use of therapeutic drugs, recognition and reporting of side effects, and critical aspects of patient care. Prereq: 351, 356. Letter grade only. Credit only.

411 Psychosocial Long-Term Nursing (6) Nursing needs of clients whose health problems are of a developmenital, behavioral, or long-term nature. Equal emphasis on prevention, wellness promotion, and rehabilitation. Nursing laboratory/clinical experiences with a psychiatric and chronic illness emphasis in a variety of acute, extended care, and rehabilitation facilities. 3 lectures, 3 lab. Prereq: All 300 level clinical nursing courses or RN status. Sp, F

415 Family/Community Health Nursing (6) Nursing needs of clients and groups with psychosocial and/or long-term health problems. Clinical experiences provide opportunities for the student to apply the nursing process to clients and groups in a variety of acute, extended care, and community settings. 3 lectures, 3 lab. Prereq: All 300 level nursing courses. For non-nurse MSN students only.

415 Family/Community Health Nursing (6) Application of the nursing process to individuals, families, and groups in the childbearing/hearing stages of development. Clinical experiences are provided in a variety of hospital and community settings. 3 lectures, 3 lab. Prereq: All 300 level nursing courses. For non-nurse MSN students only.

421 Mental Health Nursing and Restoration (4) Nursing to support and care for persons with mental health needs. Emphasis on use of self as therapeutic agent with individuals, groups and families and developing nursing skills to support clients in mental health maintenance and restoration. Prereq: all required 300 level nursing courses or RN status. 2 lec, 2 lab. F, Sp

431 Nursing of Children (4) Theoretical component and clinical laboratory experiences related to the nursing care of infants, children, and adolescents. Emphasis on application of physiological, sociocultural, behavioral, and developmental concepts for the practice of nursing care in various settings. Prereq: All 300 level nursing courses or their equivalent or RN status. F, Sp

432 Community Health Nursing: Individuals and Families (3) Exploration of political, social, economic, environmental, and lifestyle factors that contribute to health of individuals and populations. Applications of the nursing and epidemiologic processes to the care of individuals and families within the home and community; health promotion, disease prevention, and control of communicable diseases. 1 lecture, 1 sem., 1 lab. Prereq: All 300 level nursing courses or RN status. F, Sp

440 Leadership and Management in Nursing (3) Introduction to conceptual models related to leadership and management in the delivery of nursing and health care services. Prereq: All required 300 level courses. Prereq or Coreq: 401, 411, 431, 433, or RN status. F

441 Clinical Nursing Practicum (3) Intensive experiences that emphasize integration of clinical skills, decision-making, time management, leadership, and management concepts in clinical practice. Prereq: All required 300 level courses. Prereq or Coreq: 401, 411, 431, 433, 440. Satisfactory/No Credit grading only. Sp


452 Professional Leadership Issues III (2) Legal and regulatory processes affecting nursing practice and influence the practice of professional nursing. Prereq: All required 300 level courses and team work issues having an impact on nursing practice. Prereq: All required 300 level nursing courses and N451. Sp

453 Oncology Nursing (3) In-depth exploration of cancer nursing concepts; relates cellular kinetics to theories of carcinogenesis and metastasis; treatment modalities and nursing interventions employed in all phases of the disease. Interdisciplinary approach. Prereq: 319, 351, and 361, or consent of instructor.

461 Health Restoration Across the Life Span (5) Focus on health restoration in nursing practice to support and care for children or adults and their families with acute, complex health needs. Emphasis on quality of care, continuity of care, coordination of care and end of life care. Prereq: all required 300 level nursing courses. 3 lec, 2 lab, 3 lab. F, Sp

462 Health Maintenance and Restoration in Community (4) Analysis of the healthcare needs of a selected community utilizing the epidemiologic process. Emphasis on visiting clients and families across the life span in their own environment. Prereq: All required 300 level nursing courses for RNs, 352, 353, 351 and pre or core: 319 2 lec, 2 lab Sp

490 Specialty Preceptorship (4) In-depth practicum to develop knowledge and skill in a selected specialty area under the direct guidance of clinical faculty. Prereq: N406 and N451, Pre or Co req: N403, N421, N471, N461, N482 or RN Status. 1 lec, 3 lab. F

493 Independent Study (1-3) Nursing or health-related topic not covered in other nursing courses. Prereq: Senior standing or consent of instructor.

**NUTRITION (726)**

100 Introductory Nutrition (3) Nutritional concepts: current consumer issues in nutrition; nutritional needs through life cycle; international nutrition concerns and/ or issues. A nutrition major who has received credit for N400 may not receive credit for this course. F

201 Careers in Nutrition (1) Overview of nutrition-related careers. Routes to meeting academic, registra- tion, and experience requirements. Letter grade only.

300 Fundamentals of Nutrition (3) Nutrition in normal and altered health states during life cycle; nutritional analysis of diets. Prereq: Chemistry 110 or equivalent. Prereq: Coreq or Coreq: BCBM 230. A nutrition major who has received credit for NTR 100 may not receive credit for this course. Sp

302 Life Span Nutrition (3) Physiological development and psychosocial factors that influence nutrient needs and nutrition behaviors of individuals across the life span. Nutrition education strategies for various age groups. Prereq: 100, BCBM 230 or consent of instructor.

303 Foodservice Systems Management (3) Assessment of managerial, organizational and operational structures in foodservice systems with focus on markets related to dietetic practice; human resource policies and strategies applied to foodservice systems management. Sp

310 Physiological Chemistry (4) (Same as Biochemistry 310.)

312 Science of Food (4) Elements of food selection, safety, preparation and evaluation. Chemical and physical properties of food related to functional and nutritional properties; sensory evaluation concepts and techniques. Effects of processing on food. Prereq: 100, Chemistry 350. Coreq: Micro 210. 3 hours and 1 lab.

313 Vitamins and Minerals (3) Functional properties and interrelationships among vitamins and minerals as they apply to human nutrition. Prereq: 100, BCBM 230, Chemistry 350. Coreq: or Prereq: 310.

314 Energy Metabolism and Metabolic Integration (3) Integration of carbohydrate, fat and protein metabolism as applied to nutrient utilization and requirements in humans. Prereq: 310, 313.

410 Professional Issues in Dietetics (1) Dietetic registration, licensure; third party payments; dietetic prac- tice; marketing dietetics; internship application prepara- tion; policy in dietetic practice. Prereq: Senior standing.

412 Food and Nutrition in the Community (3) Influ- ence of health characteristics, geographic, social, eco- nomic, educational and cultural factors on food and nutrition programming; relationship of community food and nutrition problems to programs and services for families and communities with particular attention to disease prevention; public policy. Prereq: 302, 415.


420 Food and Nutritional Analysis (4) Principles, procedures, and instrumentation for analysis of food and body fluids. Interpretation of chemical, dietary, and anthropometric data analysis in nutrition research. Prereq: 100, 310.

450 Special Topics: Nutrition (1-3) Develops, issues and problems in Nutrition; topics variable. Prereq: Junior or Senior standing in NTR or consent of instruc- tor. May be repeated. Maximum 3 credits.

492 Field Experience: Nutrition (1-3) Prereq: Junior or Senior standing, consent of instructor. Satisfactory/No Credit only.

493 Directed Study: Nutrition (1-3) Individual student: faculty experience. Prereq: Junior or Senior standing, consent of instructor. Letter grade only.

**ORNAMENTAL**
Horticulture and Landscape Design (740)

110 Introduction to Ornamental Horticulture (3) Survey of the history, science, crafts, professions, and businesses of ornamental horticulture. F

220 Basic Landscape Plants (3) Identification, classification, adaptation, culture and landscape design uses of basic ornamental trees, shrubs, and vines. Prereq: 8 hours biological sciences or consent of instructor. F: Sp 2 hours and 1 lab

230 Interior Plantscaping (3) History and introduction of the interior plantscaping industry. Identification, culture, propagation, and landscape use of houseplants and interior plants. Management of the interior environment including light, humidity, growing media, insects, and diseases. Includes plants for office, hotel, and restaurant interiors. F

231 Interior Plantscaping II (3) Commercial application of design, sales, sales proposals, plantscape management, and basic plantscape business management for the Interior Plantscaping industry. Prereq: 230 or consent of instructor. Sp

280 Fundamentals of Landscape Design (3) History of landscape design and its relationship to regional and cultural characteristics. Understanding and sensitivity to the landscape; of landscape design as it relates to contemporary application, and basic plantscape business management. Prereq: Plant and Soil Science 210; 8 hours biological sciences or consent of instructor. 1 hour and 1 lab. F

300 Plant Propagation (3) Physiology, methodology, and environmental requirements for propagation. Prereq: 8 hours biological sciences or consent of instructor. 2 hours and 2 labs. E

340 Turfgrass Management (3) Practical turfgrass management; cultivar selection, identification, and establishment; basic applied fertilizer programs, mowing, and irrigation practices, and thatch and compaction control; pest identification and basic controls. Prereq: Plant and Soil Science 210; 8 hours biological sciences or consent of instructor. 2 hours and 1 lab. F

350 Basic Landscape Construction (3) Basic materials and detailing. Introduction to the landscape construction and contracting industry; application of landscape materials, wood, concrete and masonry construction, site drainage, and landscape grading. Prereq: 280, 2 hours and 1 lab. F

360 Practicum in Landscape Construction (3) Practical experience in implementation of landscape development projects. Directed lab and field instruction in planning operations and basic landscape construction including interpreting and implementing landscape design drawings and specifications. Prereq: 350. Two three hour labs. Sp

370 Grounds Maintenance (3) Identification and understanding of maintenance tasks; transplanting, soil amendments, growth control, irrigation, climate protection and pest control; maintenance and use of equipment; management practices. 2 hours and 1 lab. F

380 Supplemental Landscape Design Graphics (2) Refinement of graphic skills. Sketches, elevations, sections, isometric projections, and perspectives. Lettering, plan graphics, color rendering, and other visual presentation media. Prereq: 280. Two 2 hour labs. F

390 Fall Herbaceous Ornamental Plants (3) Identification, culture, and landscape use of late summer and fall flowering ornamental plants including annuals, perennials, herbs, and ornamental grasses. Basic gardening practices and design elements using such herbaceous ornamental plants. Prereq: 110 or consent of instructor. F

391 Spring Herbaceous Ornamental Plants (3) Indentification, culture, and landscape use of Spring and early summer herbaceous ornamental plants including perennials, herbs, and wildflowers. Basic gardening practices and design elements using such herbaceous ornamental plants. Prereq: 110 or consent of instructor. Sp

410 Nursery Management and Production (3) Management principles applied to retail and wholesale nurseries and landscape contracting firms. Methods of producing liners, container and field-grown woody ornamental plants including deciduous and coniferous plants. Prereq: 220, 330, and Plant and Soil Science 210. 2 hours and 1 lab.

421 Native Plants in the Landscape (3) Native plants and plant communities as a basis for landscaping and environmental restoration. Weekly lecture coupled with either an outing or service practicum of invasive exotic plant removals or planting of natives. Study and work sites will primarily be demonstration projects of the UT Environmental Landscape Design Lab. They include local schoolyard habitats, greenways, wetlands, streambanks, and shorelines. Prereq: OHLD 220, Botany 330 or consent of instructor. F

426 Public Horticulture (2) Indepth study of the public horticulture industry. Attention given to the diversity of public horticulture institutions, career opportunities, and public interest research. Discussion of current topics and issues. Senior standing or consent of instructor. Sp

429 Field Study of Public Horticulture Institutions (3) Extended 10-12 day field study of various public horticulture institutions including commercial gardens, arboretums, historical grounds, zoos, conservatories, cemeteries, and nature preserves. Application and travel fee required. Prereq: OHLD 426. Sp mini-term

430 Greenhouse Floral Crop Production (3) Principles of greenhouse operation and management for commercial production of floral crops. Greenhouse construction and operation, crop scheduling and cost accounting. Environmental inputs and cultural practices as they affect plant physiological processes and influence plant growth and development. Prereq: Agriculture and Natural Resources 290 or consent of instructor. Sp

431 Greenhouse Floral Crop Production Laboratory (1) Greenhouse production of horticultural crops. To be taken concurrently with 430. Prereq: Agriculture and Natural Resources 290 or consent of instructor. Sp

440 Advanced Turfgrass Management (4) Principles and explict basis of turfgrass culture; adaptation, ecology, physiology, soil fertility, and grass nutrition; climatic influences on grass culture; physiology of clipping, and water management; design, construction, and management of golf courses; physiological influences of pest infestation and control measures. Prereq: 340 or consent of instructor. 3 hours and 1 lab. F

450 Specialty Landscape Construction (3) Methods of design, material selection, and construction techniques for specialized components of the landscape industry. Irrigation systems, outdoor lighting, garden ponds and water features. F

451 Plant Tissue Culture (3) (Same as Botany 451.)

460 Professional Practices in Landscape Construction and Management (2) Professionalism, salesmanship, proposals, bidding, estimating, specifications, and contract management in landscape services industry. Computer technology applicable to landscape construction and contracting business operations. Prereq: 350 or consent of instructor. 2 hours. Sp

480 Advanced Landscape Design (3) Comprehensive application of landscape design skills to a variety of projects with an emphasis on landscape planning and analysis, planting design, and materials estimating. Prereq: 280. 380. Two 3 hour labs. F

485 Computer Aided Landscape Design (3) Overview of Computer Aided Design (CAD) as it relates to landscape design and construction. Emphasis on development of landscape design drawings through utilization of LANDCAD software. Prereq: 280, 380, and Agriculture and Natural Resources 290. F, Sp

490 Seminar (1) Current problems in ornamental horticulture and/ or amenity design. Prereq: Senior standing. E

492 Off-Campus Internship (1-3) Work experience in approved ornamentals, turf or landscaping industry. May be repeated. Maximum of 6 credits. E

493 Individual Problem Study (1-3) May be repeated. Maximum of 6 credits. E

494 Professional Horticultural Communications (3) Communication for public horticulturists through written, oral, and visual media. Emphasis on communication skills using proper writing techniques and grammar for proper meetings, presentations, desktop publishing, slide show development, oral presentations, and visual use for educational and informational presentations in Ornamental Horticulture. Prereq: Agriculture and Natural Resources 290 and senior standing. F, A, E

Persian (744)

161-162 Elementary Persian I, II (4, 4) (Same as Asian Studies 141-142.)

261-262 Intermediate Persian I, II (4, 4) (Same as Asian Studies 261-262.)

Philosophy (745)

110 The Human Condition: Values and Reality (3) The meaning of life, the existence of God, freedom of the will, human nature and values. Writing-emphasis course.

111 The Human Condition: Knowledge and Reality (3) The place of mind in a material universe and the nature and possibilities of human knowledge. May be taken before 110. Writing-emphasis course.

120 Foundations of Western Thought: Antiquity through 1500 (3) Plato, Aristotle, Late Antiquity and the Medieval Period. Writing-emphasis course.

121 Foundations of Western Thought: 1500 through Early Twentieth Century (3) Development of Rationalism and Empiricism. May be taken before 120. Writing-emphasis course.

130 Critical Thinking (3) An introduction to practical reasoning in natural language. Designing to enhance skills in recognizing, analyzing, evaluating and constructing arguments. Satisfies Arts and Sciences Basic Skills Requirement “Mathematics, Computer Science or Logic.”

135 Formal Logic (3) Introduction to fundamental deductive systems: propositional and predicate logic. Satisfies Arts and Sciences Basic Skills Requirement “Mathematics, Computer Science or Logic.”

200 Special Topics (3) When content varies, may be repeated. Maximum 6 hours.

240 Ethics (3) Theories of ethical values. Writing-emphasis course.

242 Ethical Theory and Its Applications (3) A study of moral values and principles in theoretical and practical contexts. Open only to students registered in the College of Business Administration.

290 Social and Political Philosophy (3) Basic problems and concepts of social and political philosophy.

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

320 Ancient Western Philosophy (3) Writing-emphasis course.

322 Medieval Philosophy (3) Development of medieval thought from St. Augustine to William of Occam. Secondary and primary sources. (Same as Medieval Studies 322 and Judaic Studies 322.) Writing-emphasis course.

324 Seventeenth- and Eighteenth-Century Philosophy (3) Writing-emphasis course.

326 Nineteenth- and Twentieth-Century Philosophy (3) Writing-emphasis course.

342 Business Ethics (3) Ethical problems as they confront both business as a social institution and individuals in business. Writing emphasis course.

344 Professional Responsibility (3) Critical analysis of selected classic texts from philosophy, religious studies, and social sciences dealing with responsibility and the nature of professionalism. Theoretical principles and analytical skills applied to selected case studies and other detailed descriptions of professional practice from engineering/architecture; business/accounting; and at least one of law/politics; helping professions (social work, human services, ministry); teaching. (Same as Legal Studies 344 and Religious Studies 344.) Writing emphasis course.

345 Bioethics (3) Ethical issues in health care such as abortion, euthanasia, human experimentation, physician-patient relationship, informed consent, and professional role in health care delivery and the doctor-patient relationship. Writing emphasis course. (Same as Religious Studies 345.)

346 Environmental Ethics (3) Issues concerning the nature of the environment and the place of humanity within it.
PHYSICAL EDUCATION ACTIVITY PROGRAM (764)

200 Special Topics (1-3) Selected topics in various activities not covered in the regular program. When content varies, may be repeated. Maximum 6 hours.

202 Badminton (1) Fundamental badminton technique, game strategy, and rules for singles and doubles play.

206 Bowling (1) Introduction to ball selection, approach, spot bowling, rules, scoring, etiquette, and basic terminology necessary for enjoyable recreational bowling.

211 Golf (1) Introduction to chipping, putting, full swing, rules, etiquette, and scoring necessary for enjoyable recreational play.

213 Ice Skating (1) Beginning skills and etiquette in ice skating. Satisfactory/No Credit grading only.

216 Martial Arts (Special Topics) (2) Special Topics. Selected topics in various forms of martial arts, including but not limited to jujitsu, judo, karate, and tai chi. When content varies, may be repeated. Maximum 6 hours.

222 Paddlesball (1) Introduction to forehand, backhand, drive, and lob shots, footwork, court position.

223 Personal Safety and Self Defense (1) Develop and teach the discipline of self defense so they may become viable considerations for personal safety. Satisfactory/No Credit grading only.

242 Physical Fitness: Conditioning (1) Program of flexibility, strength, and cardiovascular endurance through exposure to various exercise forms. Satisfactory/No Credit grading only.

245 Physical Fitness: Exercise to Music (1) Total body workout with music to lecture emphasis on basic fitness components of flexibility, strength, and cardiovascular fitness.

246 Exercise and Weight Control (1) Fitness activities and basic fundamentals of nutrition for students interested in losing weight: includes body composition assessment and instruction on achieving a goal weight.

249 Physical Fitness: Jogging (1) General factors on physical fitness with emphasis on the improvement of cardiovascular fitness through jogging.

250 Physical Fitness: Swimming (1) Introductory course outlining basic principles of fitness, evaluation, and workout design in the aquatic environment.

251 Physical Fitness: Walking (1) Course for those wishing to begin a fitness program: includes measurement and improvement of fitness components, including body composition, cardiorespiratory fitness, low back function and nutrition.

252 Racquetball (1) Pass, kill, ceiling shots, and basic strokes. Singles and doubles strategy, necessary for recreational play.

253 Racquetball II (1) Stroke refinement. Forehand and backhand kill shots, advanced strategy, and introduction to competitive play.

254 Soccer (1) Introduction to individual and team fundamentals, rules, and strategy.

255 Social Dance (2) Popular ballroom dance forms such as the swing (shag), foxtrot, cha cha, tango and rumba.

256 Softball (1) Introduction to individual and team fundamentals, rules and strategy.

259 Beginning Swimming (1) Includes skills in the American Red Cross basic swimming course for the non-swimmer.

260 Intermediate Swimming (1) Crawl stroke, elementary back stroke, side stroke, back crawl, breast stroke, entry and turns.

264 Tennis I (2) Introduction to forehand, backhand serve, volley, rules, scoring and simple strategy.

265 Tennis II (1) Development of accuracy and improved technique of ground strokes and serve; introduction to smash, spin serve, and advanced strategy.

291 Tumbling I (1) Beginning tumbling skills including forward and backward rolls, twisting, balance, agility, and combinations.

292 Tumbling II (1) Front and back handsprings, front and back somersaults, and combinations.

251 Volleyball (1) Introduction to individual and team fundamentals, rules, and strategy.

252 Weight Training (1) Introduction to the principles of strength development for large muscle groups through the use of weights and machines.

254 Yoga and Relaxation (1) Introduction to yoga and various forms of relaxation, with the majority of class time spent learning and refining the postures. Satisfactory/No Credit grading only.

255 Water Safety Instructor (2) Prepares individuals to teach American Red Cross basic swimming and personal safety courses. ARC certification.

256 Lifeguarding Training (2) American Red Cross lifeguarding and aquatic management techniques. ARC certification. Prereq: Swim test second day of class.

259 Snow Sking (1) Development of skills necessary to balance, walk and slide while on skis. Learn ski etiquette and “Skier’s Responsibility Code.” Satisfactory/No Credit grading only.

260 Western Dance (1) Popular western dance forms including line dances, western social dances, mixers and couples.

261 Scuba Diving (1) Introduction and developmental SCUBA diving skills as well as the theory, safety skills, and practical application skills to open water SCUBA diving.

PHYSICS (773)

101-102 How Things Work (3,3) For students with majors outside science. Examines familiar objects of everyday experience and leads to an understanding of the physical principles that make them work. No prerequisite.


137-138 Honors Fundamentals of Physics for Physics Majors (5,5) For physics and engineering physics majors and qualified students from other majors. Coreq: Mathematics 141-142.

161 Elements of Physics for Architects and Interior Design Students (3) Chosen topics in physics for architecture and interior design students. Course emphasizes material development by logic and lecture demonstrations. Prereq: Intermediate Algebra and one year of geometry.

221-222 Elements of Physics (4,4) Basic physical principles and applications required in premed, pre-dental, pre-pharmacy and pre-veterinary programs. 221-Mechanics, heat, wave motion, and optics. 222-Electricity and magnetism, modern physics. Must be taken in sequence. 3 hours lecture, 3 hours lab. Prereq: Mathematics 130 or Calculus.

231 Fundamentals of Physics: Electricity and Magnetism (3) For engineers and arts and sciences majors in mathematics and the physical sciences. Required of all engineering students. Prereq: Basic Engineering 121-131. Coreq: Mathematics 142. 2 hours lecture, 3 hours lab/recitation.


240 Fundamentals of Physics: Modern Physics (3) Special relativity, fundamental concepts of modern physics and their applications to atomic, nuclear, particle, and condensed matter physics. Prereq 136 or 138 or consent of instructor.

439 Research and Independent Study (1-3) Research and study in field of particular interest with faculty guidance. Consent of department is required. Maximum 6 hours.

PLANT AND SOIL SCIENCES (792)

200 Current Topics in Environmental Science (1) Lectures and/or discussions on current and fundamental issues and careers in Environmental Science. F

210 Introduction to Soil Science (3) Differences in soils; soil genesis; physical, chemical, and biological properties; soil management and tillage; soil classification. 2 hours lecture and one 2-hour lab. F

230 Introduction to Crop Science and World Crops (3) Introduction to world crops and food production systems. Emphasis on production terminology, origin and development and modern techniques in plant production. Prereq: 210, 4 hours. 2 hours lecture and one 2-hour lab. F, Sp

292 Soil Morphology (3) Intensive course involving describing, classifying and interpreting soils in preparation for regional and national soil judging contests. Prereq: Consent of the instructor. Maximum 4 hours. 1 hour and 1 lab. F, Sp

310 Soil Science (3) In-depth examination of fundamental properties of soils and their applications to agricultural and environmental soil management. Topics include soil biological, chemical, and physical properties; soil genesis and classification; and management of soil resources. Course is primarily for PSS majors. 2 hours lecture and one 3-hour lab. A 3-day, weekend field trip is required. Prereq: 210, Agriculture and Natural Resources 290 or equivalent, and Chemistry 130 or equivalent. Sp

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

315 Soil and Water Conservation (3) Hydrologic, agronomic, and engineering principles applied to resource management problems including flood and erosion control, drainage, and water quality. Prereq: 210, 2 hours lecture and one 3-hour lab. (Same as Biosystems Engineering 315). S

330 Crop Science (3) Introduction to crop science for Plant and Soil Sciences majors. Principles of production and management of selected field, forage, fruit, vegetable, tree, turf and ornamental crops. Prereq: 210, Agriculture and Natural Resources 290 or equivalent, Botany 120. Coreq: 210, 2 hours lecture and one 2-hour lab. Sp

334 Weed Management (3) Principles of weed interference, integrated management, herbicide selectivity and behavior, special considerations for various crops and non-crop situations. Prereq: 210, 2 hours and 1 lab. F

353 Biodiversity, Germplasm Conservation and Plant Improvement (3) Basic considerations of biodiversity and germplasm resources and germplasm conservation efforts. Includes germplasm resources and effects of plant reproduction systems on improvement for utilization in phytoremediation systems as well as germplasm consoritum efforts. Prereq: Botany 120 or equivalent. 2 hours lecture and one 2-hour lab. 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 Agronomy and Soil Science. Prereq: Consent of advisor and faculty committee. E

401 Seminar (1) Current topics in the plant and soil sciences. Techniques of effective oral and written presentation; professional ethics; review of literature; assignments for written and oral presentations. Senior standing. Sp

412 Soil Genesis and Classification (3) Soil genesis and formation; observing and describing morphology of agricultural and forest soils; physical and chemical properties; classification. 3 weekend field trips. Prereq: 310, 2 hours and 1 lab. F

413 Environmental Soil Chemistry (3) Composition and chemical properties of soils and processes that govern fate and behavior of chemicals in the soil environment. Topics include: clay-organic interactions; soil physical properties; mineral weathering and stability; aqeous speciation; surface chemistry; ion exchange, adsorption, and molecular retention; oxidation and reduction; soil acidity, alkalinity, and salinity. Prereq: 310 and Chemistry 110 or 350 or equivalent. F

414 Soil, Land Use and the Environment (3) Soil as an environmental component and soil properties affecting land use. Includes soil as a resource in development planning including nonengineering aspects of site selection for land use, soil survey and resource data in land use, soil fertility, and nutrient pollution. Prereq: 310 or consent of instructor. Sp-A

415 Soil Hydrology (3) Physical relationships among solid, liquid, and gaseous phases of the soil system. The relationships of soil properties to the processes governing transport of water, and chemicals in soil. Prereq: 310, 2 hour and 1 lab. F, A

431 Physiology and Ecology in Agroecosystems (3) Plant physiology and ecology applied to crop production and management. Emphasis on plant physiology and ecology of crops and practices from growing practices from seedling to harvesting and handling. Interaction of crops with their environment and sustainable agroecosystems. Prereq: 330. 2 hours lecture and one 2-hour lab. F

432 Bioclimateology (3) Solar energy budget; interactions between global, regional and local climates and biological systems; qualifications of macro and microclimates; microclimates and their modification; automated weather station data collection and analyses; biological responses to climatic stresses; climate variation and change and their effects on biological systems. Prereq: 210, Agriculture and Natural Resources 290 or equivalent, and Chemistry 130 or equivalent, junior standing. 3 hours. F-A

433 Agricultural Pesticides (3) Regulation of pesticide development, manufacture, transportation, marketing and use. Structure, use, mode of action, degradation and environmental impact of pesticides used in agriculture, forestry and related areas. Prereq: 1 year biologic courses and 1 semester chemistry. 2 hours and 1 lab. Sp

434 Fruit and Vegetable Crops (3) Principles of production systems to counter environmental stresses and to increase productivity of warm and cool season vegetable crops. Small fruit and vegetables; deciduous tree fruits and crops. Storage of crops after harvest. Prereq: 230 or 330, 2 hours lecture and 2 hours lab. F

435 Field and Forage Crops (3) Agronomic principles of crop production and management. Crop improvement, crop systems, tillage, fertilization, pest management, harvest and utilization of major field and forage crops. Prereq: 230 or 330, 2 hours and 1 lab. Sp

453 Principles of Plant Breeding (3) Genetic principles and techniques used in crop improvement. A consideration of breeding methods for the various types of plant reproduction systems and their application. A discussion of heritability estimation, genetic advance through selection and the theory upon which breeding methods are based. Prereq: 353, 471, and Biology 240. 2 hours lecture and one 2-hour lab. S, A

471 Statistics for Biological Research (3) Descriptive statistics, probability, distributions, confidence intervals, student’s t and chi-square tests, analysis of variance, mean separation procedures, linear regression and correlation. Prereq: Math 125 or equivalent. 3 hours and 1 rec. F

492 Internship in Plant and Soil Sciences (1-6) Supervised experience in a soil science-related supervised employee. Student is responsible for making arrangements. Requirements include maintaining a daily log, supervision use. Student is responsible for making arrangements. May be repeated with a maximum of 6 hours credit. Prereq: Junior standing. S/N/C. E

493 Problems in Plant and Soil Science (1-3) Special research or library problems in plant and soil science. May be repeated. Maximum 6 hours. E
POLITICAL SCIENCE (801)

101 United States Government and Politics (3) Introduction to fundamental institutions and processes of American National Politics including the Constitution, voting, the Presidency, the Congress and the courts.

102 Introduction to Political Science (3) Introduction to politics and political systems.

107 Honors: United States Government and Politics (3) Analysis and exploration of the American political system for students with superior ability. Admission by permission of department for students with at least a B average; entering freshmen accepted on basis of strong placement scores and high school record.

300 Introduction to Political Philosophy (3) An introduction to the concepts, enduring questions and significant thinkers associated with political philosophy with specific attention to the experiences of human nature, politics, the state, civic obligation and rights, freedom, justice and democracy.

311 Contemporary Issues in American Public Policy (3) Selected public policy issues confronting the nation, including the background, nature and effects of public policies, and options for the future. Writing-emphasis course.

312 Popular Culture and American Politics (3) Popular culture related to American politics and government focusing on television, music, drama, art and sports. Writing-emphasis course. (Same as American Studies 312 and Cinema Studies 312.)

315 Tennessee Government and Politics (3) Major elements in Tennessee government and politics.

320 State Government and Politics (3) Setting, institutions, and processes of government in the fifty states: generalizations and comparisons, with emphasis on federalism and intergovernmental relations.

321 Urban Politics and Process (3) Development of politics and policy-making in the modern American city. (Same as Urban Studies 321.)

330 Law in American Society (3) Law as a process and its impact on society, including the law's role in the American society. Introduction to the judicial, executive, and legislative branches of government, with an emphasis on constitutional law. Writing-emphasis course.

331 Law as a Process (3) An introduction to the concepts, enduring questions and significant thinkers associated with political philosophy with specific attention to the experiences of human nature, politics, the state, civic obligation and rights, freedom, justice and democracy.

401 Political Analysis (3) Nature, character, and functions of research design, data collection, and statistical techniques used in the study of politics.

410 Special Topics in Political Science (3) May be repeated with consent of department. Maximum 6 hours.


420 Political Attitudes and Behavior (3) Systematic examination of political attitudes, public opinion and political behavior. (Same as American Studies 420.)

421 Political Parties and Interest Groups (3) Analysis of political parties, interest groups, campaigns and elections.

430 United States Constitutional Law: Sources of Power and Restraint (3) Judicial review, constitutional powers of the President and Congress, federalism, sources of governmental authority, and constitutional protection of political and economic rights. (Same as Legal Studies 430.)

431 United States Constitutional Law: Civil Rights and Liberties (3) Current issues in civil rights and liberties, including amendment freedoms, equal protection, privacy and the rights of the accused. (Same as Legal Studies 431.)

435 Criminal Law and Procedure (3) An overview of substantive and procedural law in the criminal justice field, with emphasis on constitutional questions and public policy issues.

440 Public Management and Human Resources (3) How to mobilize and manage technical and human resources in pursuit of public sector organization goals.

441 Public Budgeting (3) The process, participants, and politics of government budgeting, with emphasis on federal budgeting, including budget reform measures and their effectiveness.

442 Administrative Law (3) Legal dimensions of administrative power and procedures, and constitutional control over administrators. (Same as Legal Studies 442.)

452 Black African Politics (3) Recent evolution and course of political environment of African nations. Writing-emphasis course. (Same as African and African-American Studies 452.)

454 Government and Politics of China and Japan (3) Political setting, structure and political processes in China and Japan. Writing-emphasis course.

456 Latin American Government and Politics (3) Introduction to the political development of Latin America with an emphasis on contemporary politics. Writing-emphasis course. (Same as Latin American Studies 456.)

459 Government and Politics of Russia and Eastern Europe (3) System transformation, political processes and governmental structure in Russia and Eastern European countries. Writing-emphasis course.

461 Policy Making in Democracies (3) Comparative approach to theory and process of making public policies.

463 Contemporary Middle East Politics (3) Recent political changes in the Middle East, including the Arab-Israeli conflict and current political environment of Black African nations. Writing-emphasis course. (Same as African and African-American Studies 463.)

465 Latin American Government and Politics (3) Introduction to the political development of Latin America with an emphasis on contemporary politics. Writing-emphasis course. (Same as Latin American Studies 465.)

466 Contemporary Middle East Politics (3) Government and movements in the Middle East, their characteristics, bases, and interrelationships.

470 International Law (3) Nature and development of international law and its role in modern society. Writing-emphasis course.

471 International Political Economy (3) Economic relations between states; theoretical and case studies of efforts to construct multilateral international institutions. Topics include economic growth, international trade and investment, development and global equity. Writing-emphasis course.

472 International Law (3) Study of the law of international relations. Writing-emphasis course.

475 Ancient and Medieval Political Thought (3) Major western political thinkers from Socrates to Marsilio of Padua. (Same as Medieval Studies 475.)

476 Modern Political Thought (3) Major western political thinkers from Machiavelli to Marx.

487-488 Senior Honors Thesis and Seminar (3,3) Required of honors majors; admission with consent of department.

491 Foreign Study (1-15) Prerequisite: Consent of instructor. May be repeated. Maximum 15 hours.

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

494 Internship (1-6) Prerequisite: Consent of department. May be repeated. Maximum 6 hours. May not be counted toward requirements for the Political Science major. S/NC only.

PORTUGUESE (811)

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

199 Portuguese Language and World Business (2) The course will examine the importance of foreign trade and the local, state, and national levels. An interdisciplinary team of faculty from the Colleges of Business and Arts and Sciences will provide an overview of the value of language study and international awareness in world business. Restricted to students majoring in the Language and World Business major concentration. See the Director for further information. F, Sp

211-212 Intermediate Portuguese (3,3) Stress reading, writing, listening, and speaking of Portuguese to prepare for upper division courses in the language. Must be taken in sequence. Language Laboratory required. F, Sp

301-302 Literature, Culture and Civilization of the Portuguese-speaking World (3,3) A course for students who have completed the intermediate sequence of Portuguese and wish to enhance their knowledge of language and culture through the medium of literature. Taught in Portuguese. Prerequisite: 212, 300 or the equivalent.

309 Intermediate Conversation and Composition (3) Designed to improve proficiency in oral and written communication in Portuguese. Prerequisites: 212, 300 or the equivalent.

315-316 Aspects of Luso-Brazilian Literature (3,3) Lusophone literature through history and the history of literature. Prerequisite: At least one course at the 300 level or the equivalent. (Same as Latin American Studies 315-316.)

400 Portuguese for Speakers of Another Romance Language (3) Accelerated class for beginning students of Portuguese with a strong background in another Romance language. Introduction to grammar, reading and culture of Portugal and Brazil. Prerequisite: 3 hours at 300 level in another Romance language or equivalent.

409 Advanced Conversation & Composition (3) Informal and structured conversation on contemporary topics (business, politics, economics, religion, art, culture) and formal writing practice at an advanced level. Prerequisite: 309 or the equivalent.

431-432 Themes in the Literature & Language of the Portuguese-speaking World (3,3) Outstanding works of literature and culture from the countries where Portuguese is spoken. Topics may vary. Prerequisite: 431. Maximum 12 hours. Prerequisite: At least one course at the 300 level or the equivalent. (Same as Latin American Studies 431-432.)

490 Internship (1-15) Career-related experiences in the United States or abroad with permission of the Language and World Business Director. For Language and World Business majors only. S/NC only.

491 Foreign Study (1-15)

493 Independent Study (1-15)

PSYCHOLOGY (830)

110 General Psychology (3) Introduction to primary approaches to the study of human behavior and experience. E

117 Honors General Psychology (3) Open to University Honors Students and to students with ACT's of 29 or higher (or SAT equivalent). Prerequisite: Consent of instructor.

210 Biological Basis of Behavior (3) Survey of theories and research concerning the role of genetic factors, nervous and endocrine systems, and other biological influences on behavior. Prerequisite: 110, F, Sp

220 Behavior and Experience: Humanistic Psychology (3) Behavioral and existential analysis of individuals and their development in natural environments. Prerequisite: 110, E
300 Child Psychology (3) The normal child from conception through infancy, childhood, and adolescence. Physiological, cognitive, social, and emotional development. Prereq: 110. E 310 Learning and Thinking (3) Survey of theory and findings of research concerning both humans and nonhumans. Prereq: 110. F, Sp 320 Motivation (3) Survey of theories and related research; discussion of applications. Prereq: 110. F, Sp 330 Abnormal Psychology (3) Individual and environmental factors in deviant and maladaptive behavior; neurotic and psychotic reactions. Contemporary methods of treatment. Prereq: 110. E 347 Honors Seminar (1) Classic works in psychology; professional and ethical issues in psychology; presentations of faculty scholarship and honors students projects. Meets weekly. May be repeated (maximum 6 hours). Prereq: Consent of instructor. 360 Social Psychology (3) Theories, methods, and findings of research concerning individual behavior in a social context. Prereq: 110. E 367 Psychology Honors Project (3) Independent study course which leads to the Honors thesis. Students must have plans of study approved by their mentor prior to enrollment. S/NC only. May be repeated (maximum 15 hours). Prereq: Consent of instructor. 370 Ethology and Sociobiology (3) (Same as Ecology and Evolutionary Biology 370). Sp 382 Contemporary Topics in Psychology (3) Current issue or problems in psychological science. Impact of technology, artificial intelligence, or stereotypes. Different topic each semester. Prereq: 110 and upper division standing, 30 or more semester hours. Maximum of 6 hours may be applied toward major. May be repeated. 385 Statistics in Psychology (3) Descriptive statistics; logic of hypothesis-testing and statistical inference. Basic parametric and nonparametric tests. Not open to students with credit in Math 115 or Statistics 201. E 395 Methods of Research in Psychology (3) Fundamentals in the design, conduct, and interpretation of research, including systematic observation, experiments, quasi-experiments, and program evaluations. Focus on both laboratory and natural settings. Prereq: 110 and 385 or Math 115 or Statistics 201; and Junior standing (60 semester hours) or consent of instructor. F, Sp 399 Supervised Research and Field Work (1-3) Field experience in community-based research and service settings. Prereq: Consent of instructor. Note: Any combination of 6 hours of 399, 489, 491, 492, 493 may be used in up to 15 hours. An additional 6 hours may be used as elective. May be repeated. E 400 Cognitive Psychology: Language and Symbolic Processes (3) Psychology of knowing, explaining, and understanding. Directed and associative thinking, memory and concept formation. Emphasis on language, use, and development of language. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. F, Sp 409 Group Facilitation (3) Study of theory and technique through supervised experience in small groups. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. May be repeated. Maximum 6 hours. 410 Sensory Processes and Perception (3) Physiological and psychological theories of perception. Emphasis on audition and vision. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. Psych 385 or Math 115 or Statistics 201 or Graduate standing. Sp 415 Psychology of Religion (3) History of the psychology of religion with an examination of various philosophical and empirical orientations. Exploration of the psychological function of religion for individuals and society. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. (Same as Religious Studies 415.) 420 History and Systems of Psychology (3) History of psychology; historical, philosophical, and technical developments. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor or Graduate standing. F, Sp 424 Psychology and the Law (3) Psychological aspects of legal systems. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor or Graduate standing. Prereq: Consent of instructor. F, Sp 430 Health Psychology (3) Psychological factors related to health and illness, including stress, personality, and environment. Applications of psychological treatments to physical illness. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor or Graduate standing. F, Sp 434 Psychology of Gender (3) Biological, psychological, and social factors in gender. Importance of gender roles and stereotypes for behavior and experience. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor or Graduate standing. F, Sp 445 Measurement and Testing (3) Theory of test construction and psychological measurement. Statistical methods in measurement. Survey of existing tests. Prereq: 110, Psych 385 or Math 115 or Statistics 201 and Junior standing (60 semester hours) or consent of instructor. F, Sp 446 Advanced Measurement and Testing (3) Emphasis on mental test theories including classical test and item response theories. Prereq: 445. 450 Comparative Animal Behavior (3) (Same as Ecology and Evolutionary Biology 450.) F 459 Comparative Animal Behavior Laboratory (3) Coreq: 450. (Same as Ecology and Evolutionary Biology 459.F) F 461 Physiological Psychology (3) Nervous system and physiological correlates of behavior. Biological basis of emotion, learning, memory and stress. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. One of the following three sequences: Biology 101 and 102, Biology 130 and 140, Anthropology 101 and 210. F, Sp 467 Psychology Honors Thesis (3) Independent study for writing and oral defense of Honors thesis. S/NC only. Prereq: consent of instructor. 470 Theories of Personality (3) Major theories of human personality and their development. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor or Graduate standing. F, Sp 475 Adolescent Development (3) Theoretical perspectives and empirical research findings pertinent to adolescent development. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. Sp 480 Theories of Learning (3) Classical and current approaches to learning. Prereq: 110. Junior standing (60 semester hours) or consent of instructor. Sp 482 Topics in Psychology (3) Intensive analysis of special topics, such as African-American Psychology or evaluation of programs in the community. Prereq: 110 and Junior standing (60 semester hours) or consent of instructor. No more than 6 hours of Psych 382 and Psych 482 may count towards the major. An additional 6 hours of Psych 382 and 482 may count as electives. May be repeated. 489 Supervised Research (1-9) Prereq: Junior standing (60 semester hours) and consent of instructor. Note: Any combination of 6 hours of 489, 489, 491, 492, or 493 may be used in this major. An additional 6 hours may be used as electives. May be repeated. E 491 Foreign Study (1-15) Prereq: Junior standing (60 semester hours) and consent of instructor. Note: Any combination of 6 hours of 399, 489, 491, 492, or 493 may be used in this major. An additional 6 hours may be used as electives. May be repeated. 492 Off-Campus Study (1-15) Prereq: Junior standing (60 semester hours) and consent of instructor. Maximum 15 hours. Any combination of 6 hours of 399, 489, 491, 492, or 493 may be applied toward major. Note: Any combination of 6 hours of 399, 489, 491, 492, or 493 may be used in this major. An additional 6 hours may be used as electives. May be repeated. 493 Independent Study (1-15) Prereq: Junior standing (60 semester hours) and consent of instructor. Note: Any combination of 6 hours of 399, 489, 491, 492, or 493 may be used in this major. An additional 6 hours may be used as electives. May be repeated. Sp 496 Senior Seminar: Great Ideas in Psychology (3) Key ideas that have shaped conceptions of humankind. Exploration of historical development, scientific evolution, and larger social context. Prereq: Senior standing (90 semester hours). Writing-emphasis course. F, Sp

PUBLIC HEALTH (839)

300 Introduction to Public Health (3) Aspects of public health including discussion of contemporary and controversial health issues. F, Sp 305 Disease Epidemiology, Prevention and Control (3) Foundations of epidemiology applied to infectious, acute, and chronic diseases. Emphasis on the applications of public health prevention and control initiatives throughout the disease cycle. Prereq: EEB 230 and 240. 310 Environmental Management and Control (3) Contemporary principles of control of disease-producing agents in our environment. Emphasizes concepts for effective application of control principles to voca- tional endeavors and management of the living environment. Includes: Drinking water quality (chemical, physical and biological), waste management (liquid, solid and hazardous), vector control, safe recreational facilities, environmental sanitation and safety to include pool management, shelter hygiene (homes, child care, schools, hospitals, etc.), occupational health and safety. F, Sp 400 Consumer Health (3) (Same as Health 400.) 410 Worksite Health Promotion (3) Foundations of health promotion programs delivered in the worksite that revolve around issues relative to employees and management. Emphasis on theory, program design, implementation, and evaluation from the perspective of health promotion specialist. Prereq: H300. Sp 493 Directed Independent Study (1-3) Individual study of selected issues. Prereq: Consent of instructor. May be repeated. Maximum 6 hours. E

PUBLIC RELATIONS (841)

270 Public Relations Principles (3) Theories and principles of public relations. Overview of public rela- tions in management of business, government, institu- tions and organizations. Brief case studies and public relations projects. 320 Public Relations Communications (3) Mechan- ics of effective writing for various media to achieve organizational goals, formation of communication, communi- cation and persuasion theories. Focus on implementa- tion of research-based and planned and managed tech- niques in a lab setting. Prereq: 270 or ADV 250, and Journalism 220, or consent of instructor. F 370 Public Relations Cases (3) Oral and written analy- sis of recent and classic case studies in public relations. Ethics, professional organizations, publications, research and forms of public relations. Methods of communica- tion and persuasion. Prereq: 270. 412 Opinion Writing (3) (Same as Journalism 412.) 416 Issues in Public Relations (3) Topics vary. May be repeated. Maximum credit 6 hours. Prereq: Consent of instructor. 470 Public Relations Campaigns (3) Research, plan- ning and communication and evaluation of major public relations campaigns. Oral and written presentation of a public relations project from inception to completion. Extensive out-of-class work. Prereq: 320 and 370 or consent of instructor. 491 Foreign Study (1-15) Advance approval of hours and topics by advisor required for registration. May be repeated for maximum of 15 hours credit. 492 Field Experience (1-2) Approved internships and other supervised practice in public relations. May be repeated for a maximum of 4 credit hours. Prereq: 320; senior standing; and consent of instructor. Satisfactory/ No Credit grading only. 493 Independent Study (3) May be repeated for maxi- mum of 6 hours. Prereq: Consent of instructor.
RECREATION AND TOURISM MANAGEMENT (854)

201 Recreation and Tourism Foundations and Leadership (4) Introduction to the field of leisure, recreation, and tourism focusing on understanding concepts, philosophies, and professional practices in the leisure service industry. Theories and practices of recreation leadership. F, Sp

290 Practicum in Recreation and Tourism Management (2-3) Supervised practicum in approved agencies offering programs in recreation and tourism. Each hour of credit requires 40 clock hours of work. For majors only. Prereq: Permission of instructor. S/NC only. E

310 Development and Evaluation of Recreation and Tourism Programs (3) Essential elements and principles in the organization, administration, marketing, and evaluation of various types of recreation and tourism programs. Emphasis on development of program objectives. Practical and comprehensive program designs and evaluation for population and facility within student's area of interest. Prereq: RTM 110, Junior standing, GPA required for admission to major. A-F, Sp

320 Therapeutic Recreation and Special Populations (3) Principles, concepts, historical development of recreation, therapeutic recreation, and leisure services to special populations. Explanation of legislation, attitudes, barriers to participants, mainstreaming, advocacy, as related to leisure fulfillment. Prereq: Consent of instructor. F

325 Therapeutic Recreation and Lifestyle Planning (3) Emphasis on how therapeutic recreation specialists can use the application of healthy lifestyle principles as a treatment modality. Importance and role of recreation-leisure participation (humor, stress-management, self-responsibility, fitness) in the planning and delivery of therapeutic recreation service for individuals with disabilities. Prereq: Consent of instructor. F

390 Practicum in Recreation and Tourism Management (2-3) Supervised practice in approved agencies offering career opportunities in recreation and tourism. Each hour of credit requires 40 clock hours of work. Only for majors in Recreation and Tourism Management. Prereq: RTM 290 and permission of instructor. S/NC only. E

410 Management Concepts of Recreation, Tourism and Sport Programs (3) Principles for operationalizing recreation, tourism and sport related programs. Units address utilizing research as a management tool, assessing program cost, facility utilization and evaluation and contemporary management concepts. Prereq: RTM 110, 310 or consent of instructor. A-F, F

415 Development and Maintenance of Recreation, Tourism and Athletic Facilities (3) Principles of designing, planning, equipping, operating and maintaining various facilities. Risk management and facility safety are incorporated into the design process. Prereq: RTM 310, or consent of instructor. A-F, F

420 Principles of Therapeutic Recreation (3) Principles and practices in therapeutic recreation, including administration and program selection, individual and program assessment, treatment plans, documentation, and professional issues. Prereq: 320 or consent of instructor. F

425 Therapeutic Recreation Programming (3) Principles and practices of therapeutic recreation programing for individuals with various, and multiple disabilities. Focus on psychological, social, and physical aspects of working with individuals in inclusive therapeutic recreation environments. Includes lab. Prereq: 320 and/or consent of instructor. Sp

430 Organization and Administration of Leisure and Tourism Services (3) Theories and practices of running and operating selected profit centers in a variety of settings. Special attention is given to market performance and economic impact. Prereq: RTM 110, Junior Standing or consent of instructor. A-F, Sp

440 Dimensions of Commercial Recreation and Tourism Enterprises (3) Organizational structures, delivery system, profit orientation, and operating selected profit centers in a variety of settings. Special attention is given to market performance and economic impact. Prereq: RTM 110, Junior Standing or consent of instructor. A-F, Sp

450 Special Topics in Leisure Education and Tourism (1-6) Development of special topics in Recreation/Therapeutic Recreation and Tourism. A-F. May be repeated. E

470 Tourism and Leisure Industries (3) An examination of the symbiotic relationship between tourism and various sectors of the leisure industry. Use of resources, both natural and developed, and the economic impacts of these ventures. Special attention is given to special interest venues and how the venue impacts the local population. Sp

490 Internship in Recreation and Tourism Management (12) Full time practice in approved recreation, sport or tourism management agency. Emphasis on supervising and administrative procedures. Prereq: RTM 290, all 300 level RTM courses, Senior Standing, GPA required for major. S/NC. E

493 Directed Independent Study (1-3) Tutorial and specialized area. Prereq: Consent of instructor. May be repeated. Maximum 6 hours. S/NC or letter grade.

RELIGIOUS STUDIES (863)

101 World Religions in History (3) Introduction to religion in culture and society, including examination of religious traditions from China, India, and the Mediterranean world. Writing-emphasis course.

102 The Comparison of World Religions (3) Introduction to religion in culture and society, focusing on cross-cultural interpretation and analysis of common problems and themes within religious traditions. Writing-emphasis course.

232 Varieties of Religious Community (3) How different forms of religious communities (sects, tribes, sects, monastic orders, denominations, familial, etc.) have sought to reject, reinforce, transform, ignore, or dominate their culture and society. (Same as Sociology 232.)

300 Ways of Understanding Religion (3) Sources and methods used in the study of religion and religions; an examination of approaches to the study of religion. Writing-emphasis course.

301 Religious Myth, Symbol, and Ritual (3) Distinctive modes of religious expression and analysis of theoretical approaches appropriate to their particular social and cultural functions in religions.

302 Anthropology of Religion (3) Religions of selected non-literate peoples. Role of religion in their social and cultural systems. (Same as Anthropology 302.)

305 Modern Religious Thought (3) Major themes, issues, and thinkers of nineteenth and twentieth century religion. Variable content. May be repeated. Maximum 6 hours.

309-310 Elementary Classical Hebrew (3,3) Basic elements of Hebrew phonology, script, morphology and syntax. Introduction to basic elements of text, form, and literary criticism.

311 Ancient Hebraic Religious Traditions (3) Development of ancient Israelite and early Jewish traditions with emphasis on those concerning the Exodus, Davidic kingship, and Zion in historical, prophetic, and apocalyptic material. Writing-emphasis course. (Same as Judaic Studies 311.)

312 Religious Aspects of Biblical and Classical Literature (3) Ways in which contemporary modes of literary analysis enhance appreciation of biblical and classical material. Ways in which the western literary tradition has appropriate and recast the biblical and classical heritage. Writing-emphasis course. (Same as Judaic Studies 312.)
313 Religious Aspects of Modern Literature (3) Issues raised for religious inquiry in contemporary literature. Relation of religious and moral considerations to problems of literary analysis; relation between religious language and forms of human expression (symbol, metaphor, myth, image) identified in study of literature. Writing-emphasis course.

315 Reformation Europe, 1500-1650 (3) (Same as History 315.)

319 Sociology of Religion (3) (Same as Sociology 319.)

320 Women and Religion (3) Concepts of gender in religious traditions, religious, social and psychological dimensions of gender-related symbols (e.g., the Goddess, God the Father) that shape women's and men's experiences; contemporary feminist discussions of ways in which religions have liberated and oppressed women. (Same as Women’s Studies 320 and Judaic Studies 320.)

321 New Testament Origins (3) Influence of pre-Christian Judaism and Greek culture and philosophy on early Christianity. Motivations and guiding concepts which led to the formation of the New Testament. Victory of the Christian Church over the forces of persecution and the Constantinian settlement (311 A.D.). Writing-emphasis course. (Same as History 321.)

322 Christian Thought (3) Principal forms of Christian thought and institutions through the interpretation of representative thinkers and movements from Augustine of Hippos to Immanuel Kant. Writing-emphasis course. (Same as History 322.)

326 Images of Jesus (3) Major portrayals of Jesus Christ from the first century to the twentieth within the context of the cultural milieu which gave birth to each. Extensive use of slides, video material, recordings, and literature.

329-330 Intermediate Classical Hebrew (3.3) 329-Readings in narrative material from the Hebrew Bible. 330-Readings in poetic and prophetic material from the Hebrew Bible. Prereq: 329 or consent of instructor.

332 Classical Islam (3) Content limited to events prior to 1773 CE, focussing on the Qur’an, the Prophetic Tradition, Islamic law, Sunnism, Shi’ism, and Sufism. Writing-emphasis course. (Same as Asian Studies 332.)

333 Islam in the Modern World (3) Beginning with the Wahhabi revolution (ca 1773 CE), this course examines movements of revival and reform in modern Islam, as well as worldwide missionary activity and the growth of the Islamic community in the US. Prereq: Religious Studies 332 or consent of instructor. (Same as Asian Studies 333.)

342 Religious Ethics (3) Selected ethical theories and moral rules of the world’s religions, their action-guides for individuals and institutions, their application to persons and social problems.

344 Professional Responsibility (3) (Same as Philosophy 344.)

345 Medical Ethics (3) (Same as Philosophy 345.)

351 Introduction to Religion in the United States (3) A representative profile of religion in the United States, organized around selected focal themes or problems. Writing-emphasis course.

352 African-American Religion in United States (3) Historical and critical examination of formation and development of African-American religious thought and institutions in America. (Same as African-American Studies 352.) Writing-emphasis course.

353 Topics in African-American Religion (3) Selected figures, themes, movements, or problems in the African-American religious tradition. Variable content. May be repeated. Maximum 6 hours. (Same as African and American Studies 353.)

355 Religion and Culture in the United States (3) Selected figures, movements, and problems in American religious life, thought, and culture from pre-colonial period to present. Prereq: 351 or consent of instructor. May be repeated. Maximum 6 hours. Writing-emphasis course. (Same as African and American Studies 355.)

370 Philosophy of Religion (3) (Same as Philosophy 370.)

373 African Religions (3) Religions of the indigenous peoples of Africa, including how myth, rites, and symbols and certain cultural and political movements in Africa have been and are being informed by religious sensibilities. Writing-emphasis course. (Same as Anthropology 373 and African-American Studies 373.)

374 Philosophy and Religion in India (3) Survey of the development of the major non-Buddhist themes of philosophy and religious thought in India. (Same as Philosophy 374.) Writing-emphasis course.

376 Buddhist Philosophy and Religion (3) Survey of the origins of Buddhism in India and further development of Buddhist philosophy and religion in India, China, Korea, Japan, Tibet, and Southeast Asia beyond. Writing-emphasis course. (Same as Philosophy 376.)

379 Religion and Philosophy in China (3) Traditional thought and religion of China in its cultural setting as basis for understanding modern China. (Same as Philosophy 379.) Writing-emphasis course.

381 Introduction to Judaism (3) History, traditions, philosophy and religion of the Jewish people grounded in Israel's history but includes diaspora, emancipation and haskalah. Writing emphasis course. (Same as Judaic Studies 381.)

383 Religion in Japan (3) Traditional religious heritage and contemporary expressions of religion in Japan with attention to religious roles in marriage, self-mastery and spontaneity, individual and community and secular to sacred. Writing-emphasis course.

384 Zen Buddhism (3) Historical, philosophical, and meditational aspects of Zen. Special emphasis on modes of emptiness, no-mind, and enlightenment and on practices of meditation and the use of the koan. Recommended Prereq: One or more of the following: 376, 379, 383.

385 Contemporary Jewish Thinkers (3) Renewal trends in Nineteenth and Twentieth-Century Judaism. Writing emphasis. May be repeated. Maximum 6 credit hours. (Same as Judaic Studies 385.)

386 Voices of the Holocaust (3) Historical underpinnings of Nazi genocides such as that of the Jewish people, Gypsies, and homosexuals. The economic, religious, social, and philosophical trends supporting massive genocide. (Same as Judaic Studies 386.)

389 Literature of the English Bible (3) (Same as English 389.)

405 Modern Jewish Thought (3) History, culture, and geography of the now Israeli portion of the Levant from 1569-1948. The modern state of Israel in 1948 and the political complexities of the Middle East. Israeli culture and literature. Writing emphasis course. (Same as Judaic Studies 405.)

411 Modern Religious Philosophies (3) Religious implications of major Western thinkers and movements from Nicolas of Cusa to the nineteenth century German Idealists. (Same as Philosophy 411.)

412 Classical Indian Systems of Philosophy: The Moksha Tradition (3) Selected writings and philosophical problems of the traditions of Samkhya, Yoga, Vedanta, Buddhism, Jainism. Prereq: Religious Studies/Philosophy 374 or consent of instructor. (Same as Philosophy 412.)

415 Psychology of Religion (3) (Same as Psychology 415.)

425 Seminar in Western Religions (3) Selected figures, themes, movements, and problems. Prereq: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

430 Seminar in American Religion (3) Selected figures, themes, movements, and problems. Prereq: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

440 Seminar in Comparative Religion (3) Selected figures, themes, movements, and problems. Prereq: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

474 Modern and Contemporary South Asian Religion (3) Religion in India during the Islamic and European colonial periods and in independent India: May include such topics as the development of vernacular forms of Hinduism; Hindu interactions with other religions; the Indian Freedom Movement and Gandhi; Women and tradition; religion, secularity, and politics in independent India; and religion and caste in the new India. Writing-emphasis course. Prereq: Religious Studies 374 or Philosophy 374.

490 Readings and Research in Religious Studies (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

499 Proseminar in Religious Studies (3) For advanced students in Religious Studies; required for majors. Selected topics, e.g., nature and function of myth in religion, problem of evil, transcendence, theories of religion, hermeneutics, integrating various disciplines involved in study of religion. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

RETAIL AND CONSUMER SCIENCES (865)

119 Introduction to the Service Industry (3) (Same as HRA119.)

210 Retail Operations Management (3) Development and overview of retailing, related businesses and industries, and the activities involved in the delivery of goods and services to the consumer. Coreq/Prereq: RCS 119.

310 Retail Buying (4) Analysis of the merchandise buying function within different types of retail organizations and structures. Application of principles associated with retail buying. Computer simulations. 3 hours and 1 discussion/lab. Prereq: HRD 210 or equivalent. ACGT 202. RCS 210.

311 Developing the Service Workforce (3) (Same as HRA 311.)

323 Diversity in the Service Marketplace (3) (Same as HRA 323.)

341 Family and Consumer Behavior (3) Understanding of behavior of individual and family, demographics, family life cycle, family dynamics and roles, cultural and ethnic influences, and individual and family decision making.

350 Consumers in the Market (3) Consumerism/consumer movement, consumer problems in today’s marketplace, legal and regulatory issues related to consumer interests, changes in American and Global marketplace, consumer economic issues-food, health care, product safety, banking, credit, housing, insurance and investment. Prereq: Econ 201.

376 Strategies for Growth (3) (Same as HRA 376.)

390 Professional Development (2) (Same as HRA 390.)

410 Strategic Retail Planning (3) Retail Management from a strategic planning perspective: development and implementation of retail strategy from financial, operational, and customer orientation. Prereq: RCS 390.

411 Entrepreneurship and Small Business Management (3) Concepts of entrepreneurship within single ownership or other business organizations; risk taking and risk management; management of a small business; current issues and problems. Prereq: MKT 301, ACCT 202.

412 Direct Retail Methods (3) Issues concerning the use of direct selling methods to sell goods and services. The course emphasizes analysis of consumers and product/service types for integrated direct retail methods. The direct retailing methods in this course include direct mail, catalogs, telemarketing, infomercials, and electronic commerce (internet) Prerequisite RCS 376.

415 Retail Promotion (3) In-store promotional activities; development of retail promotion strategies; evaluation of retail promotions; supplementary focus on advertising and other methods to communicate in-store promotions. Prereq: RCS 376.

421 International Retail Environments (3) The study and
analysis of retailing in an international and global setting. Retail processes, practices and issues within international environments—cultural, economic, social, political, legal and business. Prereq: MKT 301.

422 Professional Experience in Retail and Consumer Sciences (6) Supervised educational experiences in selected retail and consumer sciences service operations. Prereq: Progression into the program and RCS 310, 390.

425 Legal Issues in Service Management (3) (Same as RCS 320.) Economics of consumer choice (3) Micro and macro economic approaches to consumer choice across the life span; demographics; economic status of consumers; demand analysis; market structure and its impact on consumers; economics of information, implications on private and public sectors. Prereq: ECON 201.

476 Service Marketing Research (3) How to design, conduct and utilize service marketing research to improve service performance. Prereq: STAT 201, HRD 210, and RCS 376.

482 Professional Experience in Retailing II (3) Supervised professional experience in selected retail operations that build upon first professional experience. Prereq: RCS 410, 422, HE 410. Coreq: RCS 485.


493 Directed Study (1-3) Individual problems for junior and senior students with special interests in retail and consumer sciences. Prereq: Junior or Senior standing and consent of the instructor.

495 Special Topics (3) Topics in retail and consumer sciences. May be repeated. Maximum 9 hours. Prereq: Junior or Senior Standing and consent of the instructor.

497-498 Honors: Retail and Consumer Sciences (3) Individual problems for Junior and Senior students showing special ability and interest in retail and consumer sciences. Prereq: Recommendation of Department Head.

RURAL SOCIOLOGY (880)

380 Rural Sociology (3) Topics include the analysis of U.S. land tenure systems, agricultural regions, rural minorities, and business organizations, rural institutions, community decision making, local government, rural policy issues, rural industrialization, food policy, and cross-cultural analysis. Prereq: Sophomore standing. F (Same as Sociology 380.)

480 Technological and Community Change (3) Analysis of communication processes whereby new technology spreads within a farm population and analysis of social institutions related to change in rural communities. Prereq: 380 or consent of instructor. (Same as Sociology 480.)

RUSSIAN (886)

101-102 Elementary Russian (4,4) Must be taken in sequence.

199 Russian Language and World Business (2) This course will examine the importance of foreign trade at the local, state, and national levels. An interdisciplinary team of faculty from the colleges of Business and Arts and Sciences will provide an overview of the value of language skills and cross-cultural awareness in world business. Restricted to students in the Language and World Business program. See the Director for further information.

201-202 Intermediate Russian (4,4) Must be taken in sequence.

221 Rebels, Dreamers and Fools: The Outcast in 19th Century Russian Literature (3) Texts in English translation. No foreign language credit. Writing-emphasis course.

222 Heaven or Hell: Utopias and Dystopias in 20th Century Russian Literature (3) Texts in English translation. No foreign language credit. Writing-emphasis course.


311-312 Russian Composition and Conversation (3,3) Practice in writing and speaking; grammar review and vocabulary building. Prereq: Completion of 202.

325 Russian Film (3) A study of Russian cinema from the earliest days to the present. Writing-emphasis course.

371 Martyrs, Mobs, and Madmen in Russian Culture: 988-1861 (3) Explores various aspects of Russian music, art, and literature, emphasizing violent cultural clashes that produced extreme artistic reactions. Texts in English translation. Writing-emphasis course.

372 Eros, Death and Resurrection in Modern Russian Culture (3) Examines the obsessions which underlay the intellectual and cultural ferment of 20th Century Russian music, art, and literature. Texts in English translation. Writing-emphasis course.

401-402 Advanced Grammar, Conversation, and Composition (3,3) Prereq: 312 or equivalent.

424 Nabokov’s Novels and Stories (3) An intensive course covering several novels and stories, the memoir, and some scientific writings of the prolific Russian-American author. Particular attention given to the author’s philosophical views and the contact between his science and his art. In English; readings in Russian for majors. Writing emphasis course.

430 Selected Topics in Russian Literature (3) When content varies, may be repeated for credit. Writing-emphasis course. Maximum 9 hours.

451-452 Senior Seminar (3,3) For majors in Russian; minors admitted at the discretion of the instructor. Intensive study of language, literary style, and literary criticism based on selected major novels.

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

491 Foreign Study (1-15)

493 Independent Study (1-15)

SAFETY (890)

400 Directed Independent Study (1-3) Individual identification and study of safety or safety education problem (Students must have permission of instructor before registration. May be repeated. Maximum 12 hours. Prereq: Consent of instructor.

443 Sports and Recreational Safety (3) Accident prevention and injury control in sports activities; philosophy of sports safety; human environmental factors and interaction between sports injury and control; risk-taking and decision solution strategies; and contributions of sports medicine to safety. 3 hours and 2 labs. Sp


460 Fire Risk Management (3) Provides the knowledge and skills necessary to develop, implement, and manage a comprehensive fire safety program. Incorporates basic fire risk management concepts, interpretation of codes, and an exposure to basic fire analysis techniques. Prereq: Senior standing or permission of instructor.

496 Teaching Science Grades 7-12 (3) Methods, materials, recent trends in science and environmental education programs for middle school teachers. Prereq: Admission to Teacher Education Program. F

SOCIAL SCIENCE EDUCATION (900)

454 Teaching Strategies and Issues in Social Studies Education (3) Goals, objectives, techniques, materials, and evaluation; directed observation in public schools, preparation of teaching plans and materials; simulated teaching experiences. Prereq: Admission to Teacher Education Program. F

SOCIAL WORK (905)

200 Introduction to Social Work (3) Emergence of the social work profession; professional mission; knowledge, skills, and values; practice settings; client groups; helping services; career patterns; practice methods. Designed to assist students to consider their ability for careers in social work.

250 Social Welfare (3) Development, structure and function of the social welfare institution. Analysis of social welfare programs and impact of the institution on society.


312 Social Work Practice I (3) Knowledge, values, and skills for entry level generalist practice in a variety of settings. The social work problem solving process, differences in client systems, ethnic-sensitive assumptions, and the worker’s regard for person-environment configuration. Concurrent skills laboratory. Prereq: Initial progression. Prereq: Consent of instructor.


314 Human Behavior and the Social Environment (3) Interrelationships of biological, social, cultural, environmental and psychological factors in human behavior. Person-in-environment over the life span with special attention to diversity, impact of racism, sexism, and other sociocultural factors. Integration of knowledge into a social work practice perspective. Prereq: Initial progression.


412 Social Work Practice III (3) Generalist practice with emphasis on groups and communities, including treatment theories, techniques, and issues. Prereq: Full progression. Coreq: 416 and 480.


460 Integrative Seminar (2) Social work content for entry-level professional practice and current issues influencing the profession. Includes development of a portfolio reflecting BSW competencies. Prereq: Full progression. Coreq: 481.


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

492 Off-Campus Study (1-15) Prereq: Consent of instructor.

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

110 Social Problems and Social Change (3) Increasingly acute and intense problems such as alcoholism, violence, crime, inequality, lifestyle preferences, and environmental abuse within the context of social change. Assessment of control strategies.

120 General Sociology (3) Major concepts and theoretical approaches of sociology with emphasis on culture, socialization, social organization, and social stratification.

232 Varieties of Religious Community (3) (Same as Religious Studies 232.)

291 Sport in American Society (3) (Same as Cultural Studies in Education 291.)

310 American Society (3) Institutional organization of contemporary American society with particular attention to major social issues. Writing emphasis course.

311 Family (3) Theoretical frameworks and methodological approaches; their application in the sociological study of past and present family forms.

320 Interpersonal Communication Processes (3) (Same as Speech Communication 320.)

321 Sociological Theory (3) Survey of contemporary issues and problems in sociological theory with an emphasis on theoretical approaches to sociological problems and their importance for the field. Students are required to form critical appraisals of the topics addressed. Prereq: Sociology 1 or consent of instructor.

321 Sociological Research (3) Selected issues in philosophy of social science, research design, sampling, methods of data collection, and interpretation. Requires written research report. Prereq: 110 or 120 or consent of instructor. (Same as Legal Studies 331.)


343 Race and Ethnicity (3) Social sources of racial and ethnic discrimination, and political consequences. Emphasis on race and ethnicity in the United States. (Same as African and African-American Studies 343 and American Studies 343.) Writing emphasis course.

344 Power and Society (3) Sociological analysis of the formation and application of nation state policies. Examination of who gets what, why, and how. Emphasis on contrasting explanations of the control of the state and the relative autonomy of the state.

345 Collective Behavior and Social Movements (3) Collective phenomena leading to social change. Response to disaster, popular crazes, and social protests and development, organization, and function of social movements. Emphasis on American cases. (Same as American Studies 345.)

350 Criminology (3) Systemic inquiry into alternative definitions of crime, statistical distribution of different types of crime causation, and responses to crime, primarily by the police.


352 Deviance and Social Control (3) Deviants, their lifestyles, social organization, and social control.

360 Environment and Resources (3) Relationship between scarcity of natural resources and changes in societal beliefs and social structure. Topics include social and physical limits to growth and collective action problems.

363 The City (3) The revolutionary impact of cities and city life as seen from an ecological perspective. The organization of life in cities into communities, neighborhoods, and other territories. Urban planning and problems. (Same as Urban Studies 363.)

370 Social Psychology (3) Social psychological analysis of social behavior, emphasizing its acquisition, its enactment, and its dynamic nature.

375 Gender in Society (3) Exploration of gender in society utilizing various sociological perspectives with special focus on the relationships between social structures, social roles, and gender identities. (Same as Women’s Studies 375.)

380 Rural Sociology (3) (Same as Rural Sociology 380.)

400 Special Topics (3) Variable topics. Scope of subject matter determined by students and instructor with consent of department. Prereq: Determined by department. May be repeated. Maximum 6 hours.

405 Sociology of Sport (3) Social meaning, organization, and functions of sport. Prereq: 291 or consent of instructor. (Same as Cultural Studies in Education 405.)

414 Sociology of Health Care (3) Organization of health care facilities, staff-patient relationships, demographic characteristics, and prevalence of disease.

415 Sociology of Aging (3) How roles and statuses change with age in relation to the major social institutions; the impact that the rapidly increasing number of older people have on society, the effect of society on older people.

422 Comparative Poverty and Development (3) A critical examination of patterns of poverty and inequality in developing areas of the world, along with a review of major sociological theories which attempt to explain differences in patterns of development. Writing-emphasis course. (Same as African and African-American Studies 442.)

446 The Modern World System (3) Critical examination of the capitalist world-system as a social system, its coherence, boundaries, regions, members groups, cleavages, and patterns. Analysis of who gets what, why, and how in the global political economy. Writing-emphasis course.

451 Criminal Justice (3) A critical assessment of the criminal justice apparatus and its components. Brief examination of who gets most of the emphasis on the criminal courts and institutions and programs such as the prison, probation, and parole. Analysis of their operation and impacts. Prior completion of 350 is recommended. (Same as Legal Studies 451.)

455 Society and Law (3) How laws and legal processes are affected by social change, the social impact of legal sanctions, relations between law and social justice. Writing-emphasis course. (Same as Legal Studies 455.)

459 White-Collar Crime (3) The distinctive nature and dynamics of white-collar crime, victims and costs of white-collar crime, organizations as white-collar offenders, causal theories, and the dynamics of responses to white-collar crime by private and public parties.

462 Population (3) Demographic factors and social structure; trends in fertility, mortality, population growth, migration, distribution, and composition; population policy.

464 Urban Ecology (3) The relation of humans to their urban environment, conservation and the use of appropriate technology. (Same as Urban Studies 464.)

465 Social Values and the Environment (3) Human dimensions of ecosystem management and public policy. An applied focus on issues that are not within specific biophysical and social settings. Prereq: 110 or 120 or consent of instructor.

471 Sociolinguistics (3) (Same as English 471 and Linguistics 471.)

491 Foreign Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

492 Off-Campus Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

493 Independent Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

150 Intermediate Spanish Transition (3) This course is designed to prepare students for enrollment in Spanish 211. Prereq: Two years of high school Spanish a placement score below the level required for admittance to Spanish 211. This class will not count toward the College of Arts and Sciences intermediate-level foreign language requirement. Since 150 is a repeat of elementary Spanish, students who receive credit in this course may not also receive credit for any other 100 level Spanish course and therefore also forfeit the six hours of elementary language credit awarded through placement examination. For elective credit only. F, S

199 Spanish Language and World Business (2) The course will examine the importance of foreign trade at the local, state, and national levels. An interdisciplinary team of faculty from the Colleges of Business and Arts and Sciences will provide an overview of the value of language study and international cultural awareness in world business. Prereq: Spanish 110 or placement in program in Language and World Business. See the Director for further information. F

211-212 Intermediate Spanish (3,3) Prereq: 150 or 112 or Departmental Placement Exam. Must be taken in sequence. Students who place in 200 level courses from high school will receive six hours of elementary Spanish credit.

217-218 Honors: Intermediate Spanish (3,3) Honors course for students of superior ability in Spanish. Incoming Spanish placement test, high school average and performance on the ACT. Classes normally held to a maximum of 15 students. Students who earn an enrichment credit in 218 have enrichment emphasis upon speaking ability and with an introduction to reading literary selections. Students who earn an A or B in 218 have credit for 300. Prereq: 111-112 or equivalvaent. F, Sp

300 Transition: Composition and Grammar through Reading (3) Provides preparation in writing skills and exercise in key elements of grammar through the development of reading comprehension, vocabulary acquisition, and compositions on assigned topics. Available to non-native or non-bilingual students of Spanish only. Prereq: Spanish 212 or equivalent or appropriate score on Spanish Placement Test.

305 Conversation and Aural Comprehension (3) Develops speaking and listening comprehension skills through a variety of in-class and extra-class activities. Not available for credit for students whose level of proficiency in Spanish is superior as defined by the ACTFL Proficiency Guidelines. Prereq: Spanish 212 or 218 or permission of department.

323 Upper-level Grammar and Composition (3) Study of the major challenging issues in Spanish grammar with practical application in composition assignments. Any review of basics covered in previous courses is to introduce finer points. Not available for credit for students whose level of proficiency in Spanish is superior as defined by the ACTFL Proficiency Guidelines. Prereq: Spanish 218 or 210 or permission of department. Writing emphasis course.

330 Textual Analysis (3) Introduction to the art of reading and interpreting literary texts and the writing of critical essays, with attention to language structures, literary terminology, theory and concepts such as romance, tragedy, comedy, irony, narrative voice, symbol, metaphor, etc. with application to works such as short stories, one-act plays, essays, and letters. Prereq: Spanish 323. Writing emphasis course.

331 Introduction to Hispanic Culture (3) Introduction to the historical and cultural developments that led to the creation, geographic distribution and distinctive character of Hispanic cultures, with emphasis on their similarities and differences. Prereq: 150 or 112. (Same as Latin American Studies 331.)

332 Survey of Spanish Literature: 1700-Present (3) Main writers, trends, stylistic periods and artistic movements in Spain since 1700 set against a broad background of the political, social, and historical developments. Emphasis on Neo-classicism, the Romantic, the realists of the 19th century, the Generation of ’98, the avant-garde of the 1920’s and 1930’s, social realism, women writers, and developments. Prereq: Spanish 323 and 330. Writing emphasis course.
333 Survey of Spanish-American Literature: 1700- Present (3) Main writers, trends, stylistic periods and artistic movements in Spanish America since 1700 set against a broad background of cultural, socio-political and historical developments. Emphasis on Neo-classicism, the Romanticism, modernismo, the avant-garde of the 1920's and 30's, a weekly reading of the Latin American boom, women writers, and contemporary developments. Prereq: Spanish 323 and 330. Writing emphasis course. (Same as Latin American Studies 333.)

345-46 Language and Culture of the Hispanic Business World (3, 3) Commercial vocabulary, business letters, import-export, marketing. Hispanic social management culture, and the global significance of economic & political developments in Spanish-speaking countries. Required of all Spanish majors with a concentration in Language and World Business. Prereq: Spanish 323 or permission of department if a student's level of proficiency in Spanish is both superior and native as per the ACTFL Proficiency Guidelines.

401 Cultural Plurality and Institutional Changes in Latin America (3) Value systems, behavioral patterns, political parties, role of the military, the church, educational institutions and nation states. Prereq: Spanish 323 and 330. Writing emphasis course. (Same as Latin American Studies 334.)

434 Hispanic Culture through Film (3) Analysis of selected films on subjects concerning life, culture, and artistic traditions in the Hispanic world; exploration of historical and cultural contexts of films and a comparison of them with treatments of related subjects in other types of artistic production. Prereq: Spanish 323, 330 and completion of major or minor requirements in 332, 333, and 334. Taught in Spanish. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course. (Same as Latin American Studies 434.)

453 Latin American Literature (3) Explores Latin American and Latin/o/a films and videos from the 1900's to present as works of art and in light of political, cultural, and social contexts. Taught in English. Not available for Spanish major or Spanish graduate credit. Graduate credit available for Latin American Studies and Cinema Studies. 1 hour lecture, 2 hours screening, and 1 hour discussion. Writing emphasis course. (Same as Latin American Studies 453 and Cinema studies 465.)

479 Disenchanted Texts in Hispanic Literature (3) Texts representing trends and periods of renewal in Spanish and Latin American countries. Selected topics on trends and periods of renewal in Spanish and Latin American countries. Prereq: Spanish 323, 330 and completion of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course. (Same as Latin American Studies 479.)

480 Social Forces in Hispanic Literary Expression (3) Analysis of major Hispanic texts that address factors and events that influenced and/or continue to influence the social and cultural evolution of the Hispanic world, including literature itself. Prereq: Spanish 323, 330 and completion of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course.

482 Trends in Hispanic Thought (3) Intellectual and philosophical currents represented in literary works, selected thinkers, or movements in historical periods of Spain and Latin American countries. Prereq: Spanish 323, 330 and completion of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course.

484 Race, Ethnicity, and Nation in Hispanic Literature (3) Close reading and analysis of literary texts that deal with issues of race and ethnicity in the Hispanic world. Special emphasis on literary works and concepts of nationhood. Among possible course topics: mestizaje, conceptual distinctions between race and ethnicity in Latin America; indigenismo; afrocentricism; issues of migration and intercultural relations; Chicanos and Moors in Spain. Prereq: Spanish 323, 330 and completion of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course.

486 Literary and Artistic Movements in the Hispanic World (3) Examination of relationships (thematic, cultural, socio-political, aesthetic, philosophical, etc.) between specific trends in literature and other artistic media, in the light of the historical contexts in which those relationships emerged. Prereq: Spanish 323, 330 and completion of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course.

494 Spanish Community Service Practicum (1) Supervised community service with local agencies that assist Hispanic community; or supervised activities with local community organizations that promote awareness of Hispanic culture among the general public. Each credit hour requires 40 semester hours of off-campus supervised community service per semester. Prereq: Spanish 323, 330 and completion of major or minor requirements in 332, 333, and 334. May be repeated. Maximum 6 hours with permission of department. Writing emphasis course.

495 Independent Study (1-15)

SPECIAL EDUCATION (932)

310 Special Education Principles (3) Introduction to the field of special education, including the nature and causes of disabilities, family systems, a history of the field, and current policies. Prereq: Admission to Teacher Education Program.

320 Special Education Strategies (3) Introduction to basic special education procedures, including formal and informal assessment, planning, development of individual education plans, applied behavioral analysis, appropriate medical procedures, and effective instructional strategies. Prereq: 310, admission to Teacher Education Program.

419 Psychology and Education of Students with Mild Disabilities (6) Nature and characteristics of persons with mild disabilities and the educational strategies appropriate for these persons. Prereq: 310, 320 and Admission to Teacher Education Program. Coreq: 420. F.

420 Field Experience in Modified Programs (3) Practicum with teaching in modified programs: planning, developing, implementing, and evaluating instruction. Prereq: 310, 320, and Admission to Teacher Education Program. Coreq: 420. Satisfactory/No Credit only. F.

431 Field Experience in Comprehensive Programs (6) On-site teaching experience with moderately and severely handicapped children and youth. Prereq: 310, 320, and Admission to Teacher Education Program. Coreq: 430. Satisfactory/No Credit only. Sp.

432 Psychology and Education of Students with Moderate-Severe Disabilities (6) Nature and characteristics of persons with moderate/severe disabilities and the educational strategies appropriate for those persons. Prereq: 310, 320, and Admission to Teacher Education Program.

454 Education of the Gifted and Talented Children (3) Psychometric and behavioral studies of giftedness. Analysis of past and present school practices in reference to curriculum and program implementation. Prereq: Admission to Teacher Education Program.

456 Speech and Language Basis of Learning Disabilities in the Classroom (3) Normal communication development; understanding of speech and language impairment; assessment of oral language and written communication skills into existing curriculum, especially for high incidence special education students. Sp.

470 Psychology of the Exceptional Child (3) General characteristics and educational needs of exceptional children. Implications of developmental variations for functioning as adults. Enrollment limited to non-education majors.

SPEECH COMMUNICATION (943)

100 Introduction to Speech Communication (3) Fundamental theories and practices with particular refer-ence to oral communication, interpersonal, group, organiza- tional, 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 instructor.

210 Public Speaking (3) Preparation and delivery of informative and persuasive speeches. Topics include research, organization, adapting to an audience, topic selection, reasoning, and evaluating the discourse of others.

220 Interpersonal Communication (3) Process by which thoughts, feelings and attitudes are encoded and are affected by the face-to-face communication situation. (Same as Sociology 220.)