

CJ 362. SOCIOLOGY OF ADDICTION

(Same as SOC 362) Prerequisite: SOC 101. *One semester; three credits*

CJ 365. DEVIANT BEHAVIOR

An exploration of theoretical perspectives on deviance, problems in defining deviance and specific categories of deviance. Deviant behaviors discussed may include but are not limited to prostitution, gambling, transsexualism, pornography, mental illness, physical disability, homosexuality, alcoholism, and drug abuse. (Same as PSYC 365 and SOC 365) *One semester; three credits*

CJ 370. APPLICATIONS OF MEMORY

An examination of the application of memory in such diverse areas as courtroom testimony (e.g. factors influencing witnesses, hypnosis, repressed memory, false memory, voice identification), memory for everyday events, memory aids, and advertising. The relevant theories and research in each are examined. Prerequisite: PSYC 105. (Same as PSYC 370 and SOC 370) *One semester; three credits*

CJ 380-387. SELECTED TOPICS IN CRIMINAL JUSTICE

Directed work on a special topic or project in criminal justice. *One semester; one to three credits*

CJ 401. CONSTITUTIONAL LAW

(Same as POLS 471) Prerequisite: POLS 112 or HIST 151 or Permissions of the department chair. *One semester; three credits*

CJ 455. CORRECTIONAL COUNSELING

This course is designed to present some of the counseling and treatment techniques that are available to assist correctional workers toward assisting the offender to establish a satisfying lifestyle that conforms to the regulations as well as protecting the community from harmful activity by offenders placed under the correctional workers' supervision. (Same as PSYC 455) *One semester; three credits*

CJ 480-487. ADVANCED TOPICS IN CRIMINAL JUSTICE

Directed work on a special topic or project in criminal justice. *One semester; one to three credits*

■ ECONOMICS COURSES**ECON 211. PRINCIPLES OF MACROECONOMICS**

This course focuses attention on the aggregate or macroeconomic relationships and gives attention to the central problems of economic organization, the functioning of the price system, the economic role of government, the determination of national income, employment, the rate of inflation, and fiscal and monetary policy. Further, the student is introduced to the interactions between aggregate markets such as the product market, the factor/labor market, and the money market. *One semester; three credits*

ECON 212. PRINCIPLES OF MICROECONOMICS

Attention is focused on the micro concept of economic analysis, and primary attention given to the theory of the firm and partial equilibrium problems arising within any enterprise economy. Attention is also given to government regulation of business, the theory of income distribution as it pertains to the determination of wages, rents and profits, and international trade. *One semester; three credits*

ECON 303. MONEY AND BANKING

A general survey of credit and credit instruments, activities and policies of financial institutions such as commercial and savings banks, the Federal Reserve System, and investment

banks. Study of the place of money in modern economic life, including its relation to prices, employment, and business activity. Prerequisites: ECON 211, 212. *One semester; three credits*

ECON 343. INTERMEDIATE MACROECONOMICS

The theory of national income and employment, analysis of aggregate demand, the general degree of utilization of productive resources and the general level of prices as well as related questions of policy. Prerequisites: ECON 211, 212. *One semester; three credits*

ECON 344. INTERMEDIATE MICROECONOMICS

A study of basic economic theory as it pertains to the individual economic units of a society, a study of the tools which are used in analyzing these units. Price determination, market analysis, and resource allocation are stressed. Prerequisites: ECON 211, 212. *One semester; three credits*

■ EDUCATION COURSES

EDUC 110. INFORMATION TECHNOLOGY

The purpose of this course is to explore the potential of the microcomputer as an aid to teaching and learning in the classroom. The course is designed to assist students in becoming computer literate in terms of (a) demonstrating a basic working knowledge of computer technology, (b) understanding the role of computers in the classroom, (c) using a variety of software packages for record keeping, material developing, and telecommunications, and (d) exploring copyright and other intellectual ownership issues. *One semester; three credits*

EDUC 211. FOUNDATIONS OF EDUCATION (Formerly EDUC 311)

Introduction to the profession of teaching and development of a personal philosophy of teaching and learning; examination of American education and contemporary schools. Orients prospective teachers to licensure requirements and the Teacher Education Program. Field experience is a required part of the course. *One semester; three credits*

EDUC 301. INTRODUCTION TO TEACHING

Required for students exploring middle and secondary teaching majors linked with the MAT route to middle or secondary licensure. Weekly one-hour seminar, readings, and 10 hours of field experience. *One semester; one credit*

EDUC 302. PRACTICUM I

Required for students choosing middle or secondary teaching majors linked with the MAT route to middle or secondary licensure. Weekly-one-hour seminar, readings, and 10 hours of field experience. *One semester; one credit*

EDUC 331. SURVEY OF EXCEPTIONAL LEARNERS

This course surveys and assesses the physical, psychological, social, and learning characteristics and needs of atypical learners with emphasis on skills and techniques for identifying and teaching such learners in a heterogeneous classroom. Requires interviews with and observations of practitioners in special education and a practicum experience of at least ten hours. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 350. PORTFOLIO AND PRACTICUM I

Required for elementary licensure. Candidates recently admitted to the Teacher Education Program complete 30 clock-hours of school-based experience and assessments, including initial development of technology driven portfolio. Prerequisites: Admission to the Teacher Education Program. *One semester; one credit.*

EDUC 390. PRINCIPLES AND METHODS OF INSTRUCTION

This course, designed for students seeking secondary licensure, focuses on the skills appropriate to designing and implementing an instructional system suited to various types of learning, student competence levels, and curricular demands. Emphasis is placed on specific competencies in objective setting, lesson planning, testing, diagnosis, remediation, and alternative grading methods. Prerequisite: Admission to Teacher Education Program. *One semester; three credits*

EDUC 391. FIELD EXPERIENCE

Direct observation and participation in selected attendance centers. Fifteen clock hours of classroom work are required under the supervision of the classroom teacher and a college supervisor. Prerequisite: Admission to the Teacher Education Program. *One semester; one credit*

EDUC 392. FIELD EXPERIENCE

Direct observation and participation in selected schools, either elementary or secondary, depending upon the licensure track of the student. Thirty clock hours of classroom work are required under the supervision of a classroom teacher and a college supervisor. Prerequisite: Admission to the Teacher Education Program. *One semester; two credits.*

EDUC 393. FIELD EXPERIENCE

Direct observation and participation in selected schools, either elementary or secondary, depending upon the licensure track of the student. Forty-five clock hours of classroom work are required under the supervision of a classroom teacher and a college supervisor. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits.*

EDUC 401. PRACTICUM II

Required for students choosing middle or secondary teaching majors linked with the MAT route to middle or secondary licensure. Weekly one-hour seminar, readings, and 10 hours of field experience. Prerequisite: Admission to the Teacher Education Program. *One semester; one credit*

EDUC 402. PRACTICUM III

Required for students choosing middle or secondary teaching majors linked with the MAT route to middle or secondary licensure. Weekly one-hour seminar, readings, and 10 hours of field experience. Prerequisite: Admission to the Teacher Education Program. *One semester; one credit*

EDUC 407. CLASSROOM MANAGEMENT AND METHODS (Formerly EDUC 407)

Students develop and practice competence in various classroom management methods, including unit and lesson planning, interpersonal and group communication skills, and principles of effective classroom organization. Course topics include analyzing, comparing, evaluating, and applying various theories and methods of classroom motivation, management, and discipline. Ten hours of field experience required. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 408. ASSESSMENT OF LEARNING AND PRACTICE, K-12

Elective course in education giving in-depth study in assessment and evaluation methods, including test design and interpretation of results and development of authentic and performance-based approaches to measuring student learning. *One semester; three credits.*

EDUC 411. CURRICULUM AND METHODS IN SCIENCE, K-8

Required for elementary licensure. Theory and practice in transforming the methods of inquiry and the knowledge base of the sciences into the elementary science curriculum, empha-

sizing content and performance standards, planning for instruction, teaching methods, and materials, including the integration of technology into the elementary science curriculum. Field experience is a required part of this course. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 412. CURRICULUM AND METHODS IN SOCIAL STUDIES, K-8

Required for elementary licensure. Theory and practice in transforming the methods of inquiry and the knowledge base of the social sciences into the elementary social studies curriculum, emphasizing content and performance standards, planning for instruction, teaching methods, and materials, including the integration of technology into the elementary social studies curriculum. Field experience is a required part of this course. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 416. CREATIVE EXPRESSION IN ELEMENTARY SCHOOLS, K-6

Required for elementary licensure. Integration of concepts of music, visual art, drama and dance into the elementary classroom. Prerequisite: Admission to the Teacher Education Program. *One semester; one credit*

EDUC 420. PORTFOLIO AND PRACTICUM II

Required for elementary licensure. Candidates at a mid-point in the Teacher Education Program complete 30 clock-hours of school-based experience and assessments, including further development of technology-driven portfolio, appropriate Praxis II tests, and application for student teaching experience. Prerequisite: Admission to the Teacher Education Program. *One semester; one credit*

EDUC 421. CONCEPTS OF MATHEMATICS IN ELEMENTARY EDUCATION

Required for elementary licensure. Number theories and systems, decimals and fractions, probability and statistics, data analysis and display, algebra, geometry, problem-solving, and quantitative reasoning with attention to application in the elementary classroom. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 422. CURRICULUM AND METHODS IN MATHEMATICS, K-8

Required for elementary licensure. Theory and practice in transforming the methods of reasoning and the knowledge base of mathematics into the elementary math curriculum, emphasizing content and performance standards, planning for instruction, teaching methods, and materials, including the integration of technology into the elementary math curriculum. Field experience is a required part of this course. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits*

EDUC 423. CURRICULUM AND METHODS IN LANGUAGE ARTS, K-8

Required for elementary licensure. Theory and practice in reading and instruction and in the knowledge and skills of language literacy, emphasizing content and performance standards in the language arts, planning for instruction, teaching methods, and materials, including the integration of technology into the elementary language arts curriculum. Field experience is a required part of this course. Prerequisite: Admission to the Teacher Education Program. *One semester, three credits*

EDUC 424. CREATIVE EXPRESSION IN ELEMENTARY SCHOOLS, K-6

Required for elementary licensure. Integration of concepts of music, visual art, drama, and dance into the elementary classroom. Prerequisite: Admission to the Teacher Education Program. *One semester; one credit*

EDUC 425. CHILDREN'S LITERATURE (Formerly ENG 365)

A study of literature written for children and adolescents. Prerequisite: Admission to Teacher Education Program. *One semester; three credits*

EDUC 426. INTEGRATING CURRICULUM

This course examines features of integrated curriculum, including standards-driven instruction, concept-and theme-based units, and integration of content to ensure transfer of knowledge. Prerequisite: Admission to Teacher Education Program. *One semester; three credits*

EDUC 427. MIDDLE SCHOOL STRATEGIES

This course analyzes elements of high-performing middle schools in relation to characteristics of young adolescents. Topics include interdisciplinary teaming, block scheduling, teacher-based guidance, exploratory experiences, and the changing roles of middle school teachers. Prerequisite: Admission to Teacher Education Program. *One semester; three credits.*

EDUC 428. ADOLESCENT LITERATURE

A study of literature written for preadolescent children and adolescents designed for those who will teach middle school and high school English and language arts. Prerequisite: Admission to the Teacher Education Program or permission of instructor. *One semester; three credits.*

EDUC 429. READING AND WRITING ACROSS THE CURRICULUM, 7-12

(Formerly EDUC 415) Emphasizes and fosters continued development in student literacy and academic ability in all disciplines taught in the secondary school. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits.*

EDUC 430. CURRICULUM AND ASSESSMENT IN SECONDARY SCHOOLS, 7-12

Elective course focusing on standards-based curriculum development and assessment strategies in the secondary school. *One semester; three credits.*

EDUC 431. STUDENT TEACHING—ELEMENTARY LEVEL I

Directed student teaching in the early childhood grades is under the supervision of a selected cooperating teacher and a selected university supervisor. Prerequisites: Permission of the department chair and admission to Teacher Education Program. Corequisites: EDUC 432, 438. No other courses may be taken concurrently except corequisites. Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 432. STUDENT TEACHING—ELEMENTARY LEVEL II

Directed student teaching in the middle grades is under the supervision of a selected cooperating teacher and a selected university supervisor. Prerequisites: Permission of the department chair and admission to Teacher Education Program. Corequisites: EDUC 431, 438. No other courses may be taken concurrently except corequisites. Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 433. STUDENT TEACHING—ELEMENTARY LEVEL III

Directed student teaching in grades K-6 under the supervision of a selected cooperating teacher and a selected university supervisor. Reserved only for students seeking K-12 licenses who must also complete part of their student teaching experience in a 7-12 setting (see EDUC 437). Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 435. STUDENT TEACHING—SECONDARY LEVEL I

Directed student teaching in grades 7-9 is under the supervision of a selected cooperating teacher and a selected university supervisor. Prerequisites: Permission of the department chair

and admission to Teacher Education Program. Corequisites: EDUC 436, 438. No other courses may be taken concurrently except corequisites. Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 436. STUDENT TEACHING—SECONDARY LEVEL II

Directed student teaching in grades 10-12 is under the supervision of a selected cooperating teacher and a selected university supervisor. Prerequisites: Permission of the department chair and admission to Teacher Education Program. Corequisites: EDUC 435, 438. No other courses may be taken concurrently except corequisites. Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 437. STUDENT TEACHING—SECONDARY LEVEL III

Directed student teaching in grades 7-12 under the supervision of a selected cooperating teacher and a selected university supervisor. Reserved only for students seeking K-12 licenses who must also complete part of their student teaching experience in a K-6 setting (see EDUC 433). Offered in the Fall and Spring semesters. *Pass/Fail Grading. One semester; six credits.*

EDUC 438. STUDENT TEACHING SEMINAR

The seminar includes discussion of classroom experiences, lesson plan preparation, lessons taught and observed, as well as ways to integrate resources, to recognize and refer problem students, to study and manage time. Progress on the development of state-mandated knowledge and skills will be reviewed. Prerequisite: Admission to Teacher Education Program. Corequisites: EDUC 431, 432 or 435, 436. *One semester; one credit.*

EDUC 444. ART IN THE SCHOOLS.

Perspective on the role of art and art education in the schools. Required curriculum and methods course for prospective art teachers. *One semester; three credits.*

EDUC 445. SCHOOL HEALTH

This course covers school health knowledge and skills required for teachers, including health services, healthful school living, health screening, home and school safety, health content skills and materials, and first aid with CPR. *One semester; one credit*

EDUC 446. TEACHING MATHEMATICS, 7-12

Required curriculum and instructional methods course for all students completing a licensure program in secondary mathematics. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits.*

EDUC 447. TEACHING SCIENCE, 7-12

Required curriculum and instructional methods course for all students completing a licensure program in any secondary science area (Biology, Chemistry, or Physics). Prerequisite: Admission to the Teacher Education Program. *One semester; three credits.*

EDUC 448. TEACHING ENGLISH/LANGUAGE ARTS, 7-12

Required curriculum and instructional methods course for all students completing a licensure program in secondary English. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits.*

EDUC 449. TEACHING HISTORY/SOCIAL STUDIES, 7-12

Required curriculum and instructional methods course for all students completing a licensure program in secondary history. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits.*

EDUC 450. TEACHING FOREIGN LANGUAGE, K-12

Required curriculum and instructional methods course for all students completing a licensure program in a foreign language. Prerequisite: Admission to the Teacher Education Program. *One semester; three credits.*

EDUC 451. RELIGIOUS EDUCATION CURRICULUM AND METHODS, K-6

This course explores appropriate curriculum and instruction for religious education programs and courses in the elementary school or at the elementary level. *One semester; three credits*

EDUC 452. RELIGIOUS EDUCATION CURRICULUM AND METHODS, 7-12

This course explores appropriate curriculum and instruction for religious education programs and courses in the secondary school or at the secondary level. *One semester; three credits*

EDUC 490-498. PROBLEMS IN EDUCATION

Directed work in a special topic in education approved by the department up to 3 credit hours. Prerequisite: Approval of Director of Teacher Education. *One semester; one to three credits*

■ ELECTRICAL AND COMPUTER ENGINEERING COURSES

Requirements for the degree are found on Pages 87 and 88. Requirements for a dual degree in Electrical Engineering and Computer Science are found on Page 89.

ECE 112. COMPUTERS IN ENGINEERING PROBLEM SOLVING (Formerly EE 112)

Introduction to the use of the digital computer in problem solving. Topics include flow of control, functions and user defined functions, pointers, array, strings and File I/O, study structured programming, pseudocode. Some applications will include graphics. Corequisite: MATH 131 or registration therein. Offered in the Fall and Spring. *One semester; three credits*

ECE 120. INTRODUCTION TO JAVA PROGRAMMING

Introduction to the use of the digital computer in problem solving. Topics include flow of control, functions and user defined functions, array, strings, and File I/O, study structured programming. Some applications will include graphics. On-Line Course. Offered as needed. *One semester; three credits*

ECE 200. INTRODUCTION TO FLIGHT SCIENCE

Ground instruction to meet FAA private pilot aeronautical knowledge requirements. Subjects include aircraft systems, performance and operation, aviation weather, weather monitoring systems, visual flight rules, navigation, electronic navigational aids, safety considerations, and applicable Federal Aviation Regulations (FARs). Prerequisite: MATH 105. *One semester; three credits*

ECE 201. ENGINEERING INSTRUMENTATION (Formerly EE 201)

A laboratory course designed to instruct students in the theory and use of various engineering instruments and transducers. Emphasis is placed on appropriate error analysis in the reduction, analysis, and reporting of data. Technical report preparation is emphasized. Two lecture periods and one laboratory period of three hours. Prerequisite: ECE 221. Offered in the Fall and Spring. (Same as ME 301) *One semester; two credits*

ECE 221. ELECTRIC CIRCUIT ANALYSIS I (Formerly EE 221)

Fundamental electrical concepts: charge, voltage, current, power, resistance, capacitance and inductance. Techniques of circuit analysis; Kirchhoff's Laws; nodal and mesh analysis; source transformations. Thevenin's and Norton's theorems; linearity and superposition. Transient analysis; source free R-L, R-C, and R-L-C networks; unit step forcing function; natural and forced

responses. Sinusoidal steady-state analysis; the complex forcing function; phasors-complex impedance; complex power; effective values and balanced three-phase systems. Prerequisite: MATH 132. Corequisite: PHYS 251. Offered in the Fall and Spring. *One semester; three credits*

ECE 222. ELECTRIC CIRCUIT ANALYSIS II (Formerly EE 321 or EE 222)

Complex frequency; damped sinusoidal forcing function, $Z(s)$ and $Y(s)$. Frequency response; series and parallel resonance. Magnetically coupled circuits; mutual inductance, linear and ideal transformers. Two-port networks; admittance, impedance and hybrid parameters. Fourier analysis; trigonometric and complex forms; complete response to periodic forcing functions. Fourier transforms; unit impulse function; convolution and circuit response in the time and frequency domain; system transfer functions. Laplace transform techniques; initial and final value theorems and transfer functions. Prerequisites: ECE 221 and MATH 231. Offered in the Fall and Spring. *One semester; three credits*

ECE 234. DATA STRUCTURES AND PROGRAMMING

Topics include data structures such as lists, stacks, queues, trees and tables, inheritance, polymorphism and techniques for building systems of interacting components. The student masters concepts and skills through the design and implementation of correct, robust and readable programs. (Same as CS 234) Offered in the Fall semester. One design credit. Prerequisite: CS 122 or ECE 112. *One semester; three credits*

ECE 236. OBJECT ORIENTED SYSTEMS DESIGN (Formerly ECE 233)

This course teaches the student how to build effective models using object oriented methods. It stresses the use of strategies and patterns in the analysis and the design of object oriented systems in engineering and sciences. It uses a modeling approach for the structure and behavior of objects. The student implements models with a software tool. Offered in the Spring semester. (Same as CS 236) One design credit. Prerequisite: ECE 234. *One semester; three credits*

ECE 244 COMPUTER PROGRAMMING LABORATORY

Lab to accompany ECE 234. Project driven laboratory experiments with emphasis on library design, polymorphism techniques, and debugging. (Same as CS 234L) Corequisite: ECE 234. *One semester; one credit*

ECE 250. DIGITAL DESIGN (Formerly EE 250)

Binary number system and Boolean Algebra. Minimization of logic functions. Implementation of logic circuits. Design of combinational circuits. Sequential devices. Design of synchronous sequential circuits. Introduction to counters, registers, and Register Transfer Language. Design of advanced arithmetic circuits. Memory devices. Processor design and microprogramming. Written reports are required for each of three design projects. Prerequisites: ECE 112 or CS 122 and 122L. Offered in the Fall semester. *One semester; three credits*

ECE 251. MICROPROCESSOR ARCHITECTURE AND PROGRAMMING

(Formerly EE 251) Eight bit microcomputer architecture, instructions, addressing modes registers, assembly language. Interfacing methods and devices. Current popular microprocessors with emphasis on the Motorola 68HCII. Two design projects will be required, one of which must include hardware. Prerequisite: ECE 250. Offered in the Spring semester. *One semester; three credits*

ECE 314. ENGINEERING ECONOMY (Formerly EE 314)

Fundamentals of engineering economy. Cost concepts. Time value of money and equivalence. Economic analysis of alternatives. Replacement analysis. Depreciation and after-tax analysis.

Effects of inflation on economic analysis. Prerequisite: Junior standing. (Same as CH E 314, CE 314, ME 314) *One semester; three credits*

ECE 322. LINEAR CONTROL SYSTEMS (Formerly EE 322)

Analysis and design of linear control systems. Transfer function, block diagrams and state-variable representation. Feedback concepts and stability analysis in both the frequency and time domain. Design by Root locus, Bode plots, and state variable methods. Emphasis on use of computational software for complex cases. (Same as ME 422 Control Systems Engineering) Prerequisites: MATH 231, ECE 221, and MEA 202. Offered in the Fall semester. *One semester; three credits*

ECE 331. ELECTRONICS I (Formerly EE 331)

Properties of semiconductors. PN-junction diodes: theory, models, and circuit applications. Operation and characteristics of bipolar junction and field effect transistors. Analysis and design of transistor bias circuits. Low frequency transistor models. Analysis and design of single stage amplifiers. Introduction to the operational amplifier and some of its applications. Introduction to frequency response of amplifiers. Introduction to oscillation. Prerequisite: ECE 221. Offered in the Fall semester. *One semester; three credits*

ECE 332. ELECTRONICS II (Formerly EE 332)

Analysis and design of single and multi-stage transistor circuits. Applications of the operational amplifiers and other integrated circuits. Introduction to feedback amplifiers, digital electronics, and small analog-digital systems. Introduction to power devices and circuits. Prerequisites: ECE 222, 331. Offered in the Spring semester. *One semester; three credits*

ECE 335. SYSTEMS, SIGNALS AND NOISE (Formerly EE 335)

Signal models, systems analysis, random variables and random processes. Analog communication systems, baseband analog signal transmission, and continuous wave modulation techniques for analog transmission. Digital transmission for analog signals, sampling, quantizing, encoding of analog signals for transmission over digital systems. Analysis and design of digital communications systems, information theory, discrete pulse and carrier wave modulation schemes. Written reports are required for each of the three design projects. Prerequisites: ECE 222 and MATH 309. Offered in the Spring semester. *One semester; three credits*

ECE 341. JUNIOR LABORATORY I (Formerly EE 341)

Experiments paralleling topics from ECE 222 and ECE 331. Most experiments will relate to topics from electronics and stress designing with discrete electronic devices. Introduction to integrated circuits through circuit applications. Students will be required to maintain a lab journal. Prerequisite: ECE 201. Prerequisites: ECE 201,221. Corerequisite: ECE 331. Offered in the Fall semester. *One semester; one credit*

ECE 342. JUNIOR LABORATORY II (Formerly EE 342)

Design projects paralleling ECE 322 and ECE 331. Some experiments may be assigned by the instructor, but some projects will be proposed by the students and submitted to the instructor for approval prior to the initiation of the work. An engineering notebook is kept by each student. Prerequisite: ECE 341. Corequisite: ECE 332. Offered in the Spring semester. *One semester; one credit*

ECE 350. COMPUTER SYSTEMS DESIGN AND ARCHITECTURE

General-purpose machines. Machine language and instruction set design. Simple RISC Computer using RTN, CISC (Motorola 68000) and RISC (SPARC) machines. Processor design, machine reset and exceptions. Pipelining and parallelism. Radix conversion, fixed and float-

ing point arithmetic. Memory system design, virtual memory, and multi level memory. I/O subsystems, DMA, and error control. Peripheral Devices and intro to computer communication. Offered in the Fall semester. Prerequisite: ECE 251. *One semester; three credits*

ECE 400. THE COMPLEAT ENGINEER (Same as CH E 400, CE 400, and ME 400)

This course deals with a wide array of issues facing the practicing engineer. Topics include: engineering ethics; regulatory issues; health, safety, and environmental factors; reliability, maintainability, producibility, sustainability; and the context of engineering in the enterprise, in society, and as part of the global economy. Prerequisite: Permission of the department. *One semester; three credits*

ECE 401. ELECTROMECHANICAL ENERGY CONVERSION (Formerly EE 401)

Linear and nonlinear magnetic circuits of transformers. Basic principles of electromechanical energy conversion, electromechanical devices and feedback control systems. Derivation and analysis of mathematical models. Rotating a.c. and d.c. machinery and their use to control systems. Direct energy conversion systems. Prerequisite: ECE 222. Corequisite: ECE 403. Offered in the Fall semester. *One semester; three credits*

ECE 403. ENERGY CONVERSION LABORATORY (Formerly EE 403)

Laboratory experiments paralleling ECE 401. Single phase transformers. Induction and synchronous machines. Use of variable frequency sources for speed control of induction motors, voltage and speed control circuits of d.c. machines. Structured, written laboratory reports. Corequisite: ECE 401. Offered in the Fall semester. *One semester; one credit*

ECE 406. ELECTROMAGNETIC FIELD THEORY (Formerly EE 405 and ECE 405)

Field and vector operations. Electrostatic and magnetostatic fields. Time varying fields and electrodynamics. Plane waves. Transmission lines, transient and steady state. Prerequisites: ECE 221, MATH 232 and PHYS 251. Offered in the Fall semester. *One semester; four credits*

ECE 409. ELECTRICAL AND COMPUTER ENGINEERING PROJECT I

(Formerly ECE 409-410)

Design, development and implementation of student selected projects. Projects are sponsored by local and national industry. Includes complete engineering and testing as well as economic analysis. Written reports are required with the final product in engineering report form. A required oral presentation of the project to industry sponsors, faculty and students. Prerequisites: ECE 332, Senior Standing, and approval of Department advisor. Offered in the Fall semester. *One semester; one credit*

ECE 410. ELECTRICAL AND COMPUTER ENGINEERING PROJECT II

(Formerly ECE 409-410)

This is the major design experience for ECE students in which they demonstrate knowledge and skills acquired in earlier course work, technical and non-technical. They must also incorporate relevant engineering standards and realistic constraints in their work. Students select, design, develop and implement solutions to selected projects. Projects are suggested and sponsored by local and national industry, government, and institutions. Written reports are required with the final report in engineering report form. A final oral presentation to sponsors, faculty and friends is required. Prerequisites: ECE 409, senior standing and approval of department advisor. Offered in the Spring semester. *One semester; two credits*

ECE 413. ANTENNA THEORY (Formerly EE 413)

Radiation-oscillating electric dipole, radiation from resonant length antennas. Antenna fundamentals-directional properties, linear arrays, antenna gain and terminal impedance. Wire

antennas, broadband techniques, and aperture antennas. Emphasis on design techniques and major written design report. Computer solutions employed. Prerequisites: ECE 405 and PHYS 252. *One semester; three credits*

ECE 417. OPTICAL FIBER COMMUNICATION (Formerly EE 417)

A study of the transmission properties of optical fibers; light sources and detectors; power launching and coupling; noise sources; modulation formats, system analysis and design. Prerequisites: ECE 331, 335, 406 and PHYS 252. *One semester; three credits*

ECE 418. POWER SYSTEM ANALYSIS (Formerly EE 418)

A study of power system parameters, circuit transposition and per unit computation. Load flow studies. Fault calculation by computer simulation. System stability and protective relaying. Circuit breakers and lightning arresters. Formal reports required for two design projects. Prerequisite: ECE 222, 401 or Permission of the instructor. Offered in the Spring semester. *One semester; three credits*

ECE 420. DIGITAL CONTROL SYSTEMS (Formerly EE 420)

Analysis of discrete time systems, sampled-data systems, and digital systems. Development of Z transforms and pulse-transfer functions. Characterization of dynamic response of D/A-A/D conversion, sampling, aliasing. Elements of the design of digital feedback control systems. Transform techniques. Design using control system specifications and root loci diagrams. State variable methods. Introduction to random processes and modern filtering. Effects of quantization. Prerequisite: ECE 322. *One semester; three credits*

ECE 421. MECHATRONICS

An intermediate treatment of the design of systems with interdependency of electrical and mechanical components. Topics include measurement theory, computer interfacing and control, sensors, actuators, and introduction to real-time fuzzy logic controllers. Prerequisites: ECE 251 or ME 202 or Permission of instructor. *One semester; three credits*

ECE 435. ELECTRONICS III (Formerly EE 435)

Continued use of the computer as a tool in analysis and design of electronic circuits. Feedback amplifiers; frequency response of feedback amplifiers including topics in compensation of amplifiers; oscillators; operational amplifiers; active filters; small analog-digital systems; other selected topics of interest to the class. Prerequisite: ECE 332. Corequisite: ECE 445. Offered in the Fall semester. *One semester; three credits*

ECE 436. POWER ELECTRONICS (Formerly EE 436)

History and introduction. Diode rectifiers. Thyristors and controlled rectifiers. AC voltage controllers. Commutation Techniques. Power transistors, DC choppers, PWM inverters, DC and AC drivers. Protection of devices and circuits. Prerequisites: ECE 332, 417. Offered in Spring semester. *One semester; three credits*

ECE 445. ELECTRONICS III LABORATORY (Formerly EE 445)

Design projects paralleling ECE 435. Projects will be proposed by the students and submitted to the instructor for approval prior to the initiation of the work. Use of engineering logbook/notebook. Prerequisite: ECE 342. Corequisite: ECE 435. Offered in the Fall semester. *One semester; one credit*

ECE 450. COMPUTER NETWORKS

The course emphasizes the relationship between computer systems and network services. HTTP, SMTP, DNS, NNTP and other networking services are introduced and explained. The Unix operating system implementation of these services is studied. Network based programming

projects are assigned to verify understanding of protocols and operating system issues. Security and privacy issues in a networked environment are addressed. Prerequisite: ECE 234 or CS 234 or permission of instructor. Offered in the Spring semester. *One semester; three credits*

ECE 451. ADVANCED C++ PROGRAMMING (Formerly EE 479)

This course extends the object-oriented concepts developed in ECE. The course will cover topics that address namespaces, templates, exceptions, run time type identification, and the standard library including containers, iterators, and algorithms. Prerequisites: Senior standing or Permission of the instructor and either ECE 112 or CS 122. *One semester; three credits*

ECE 453. COMPUTER GRAPHICS (Formerly ENGR 423 and EE 423)

This course is designed to give students an introduction to the use of computers as tools in graphical design. Topics include computer hardware, two and three dimensional representation, orthographic views, isometric views, curved surfaces, animation, and interactive techniques. A graphics project is required. (Same as CS 423) Prerequisites: Permission of the instructor and ECE 112 or CS 122. *One semester; three credits*

ECE 454. COMPUTER HARDWARE (Formerly EE 454)

Review of logic operations. Boolean algebra. Analysis and design of combinatorial circuits and sequential circuits. Race conditions and state assignments. Use of FPGA, EPLD, and VHDL in embedded digital design. Design tradeoffs: economics, speed, power dissipation, timing considerations, hardware and software. Computer related I/O standards such as: IEEE 488, CAMAC, RS449. Prerequisites: ECE 251 and Senior standing. *One semester; three credits*

ECE 457. CONNECTIONIST ARTIFICIAL INTELLIGENCE

Fundamental concepts of neurocomputing, biological versus artificial neurons, parallel and distributed computing, learning by adjusting connection weights. Mapping networks, including Associative Memory, Backpropagation, and Counterpropagation. Recurrent networks, including Hopfield and Boltzmann Machine. Self-organizing networks, including Kohonen and Adaptive Resonance Theory. Neurofuzzy systems. Using genetic algorithms as network-training algorithm. Prerequisites: ECE 112 or equivalent; Junior or senior standing. *One semester; three credits*

ECE 470. DATA COMMUNICATIONS (Formerly EE 415)

Elements of data communication and the ISO reference model. Network structure, architectures and protocol hierarchies. Algorithms and heuristics for design of computer network topology. Physical basis for data communication. Synchronous and asynchronous data communication, interface standards, data channels and modulation schemes. Data link protocols. Point-to-point, satellite, packet radio, and local area networks. Written reports are required for each of the three design projects. Prerequisite: ECE 335. Offered in the Fall semester. *One semester; three credits*

ECE 471. DESIGN OF DATABASE SYSTEMS

Comprehensive introduction to the design of databases and the use of database management systems for the implementation of database applications. Entity-relationship and relational data models and database design. Abstract query languages (relational algebra) and SQL (language for creating, querying, and modifying relational and object-relational databases). Views, integrity, constraints, triggers, transactions, and security. Data warehouses, data mining, temporal databases, XML. Prerequisite: Junior standing. *One semester; three credits*

ECE 472. DATABASE SYSTEM IMPLEMENTATION.

File organization and access, buffer management, performance analysis, and storage manage-

ment. Database system architecture, query optimization, transaction management, recovery, concurrency control. Reliability, protection, and integrity. Design and management issues. Prerequisite: Junior standing. *One semester; three credits*

ECE 473. HUMAN COMPUTER INTERACTION.

This course focuses on issues involved in the design of computer systems as they relate to the interaction between people and computers. Techniques demonstrating effective human computer interaction are assessed. Students will evaluate the human factors and theories associated with human-computer interaction. Prerequisite: Junior standing. *One semester; three credits*

ECE 475. DIGITAL TELEPHONY (Formerly EE 475)

Analysis of telephone transmission media. Study of linear distortion, echo and losses. Pulse Code Modulation. Logarithmic and A-Law compounding. Study of signal to noise ratio of digital modulation schemes. Digital Switching time and space. Switch complexities and ASDL. Fundamentals of traffic analysis and teletraffic theory. ISDN. Study of framing. Quality of Service (QoS) and timing of current telephone trends and services such as Frame-Relay, IP telephony, ATM and AIN networks. Prerequisites: ECE 335, Senior standing, or Permission of instructor. *One semester; three credits*

ECE 476. MODELING AND SIMULATION OF COMMUNICATION NETWORKS

(Formerly EE 476) Computer modeling of communication networks including voice, data and integrated networks. Analysis, modeling, and statistical validation of network traffic. Design of simulation experiments-Factorial, Fractional-Factorial, and advanced designs. Validation, analysis and interpretation of network simulations. The students are required to implement three designs of communication networks. Prerequisite: ECE 335. *One semester; three credits*

ECE 477. DIGITAL SIGNAL PROCESSING (Formerly EE 477)

Discrete time signals and systems. The discrete time Fourier transform. The z-transform. The inverse z-transform. The discrete Fourier series. The discrete Fourier transform. Circular convolution. Representation of linear digital networks. Network structures for IIR systems. Network structures for FIR systems. Design of IIR digital filters. Digital Butterworth filters. Design of DIR filters. Computation of the discrete Fourier transform. The FFT. Written reports are required for each of the three design projects. Prerequisite: ECE 335. Offered in the Spring semester. *One semester; three credits*

ECE 480-489. SPECIAL TOPICS (Formerly EE 480-489)

Elective courses of special or current interest. Usually taught by visiting faculty with special or unique qualifications. Normally taken by Seniors. Prerequisites are announced with course offerings. *One semester; three credits*

ECE 490-494. SEMINAR (Formerly EE 490-494)

Special series of lectures on selected topics. Course credit assigned may range from zero to two. *One semester; zero to two credits*

ECE 495-496. INTERNSHIPS IN ELECTRICAL AND COMPUTER ENGINEERING

Students majoring in electrical engineering may be placed in the engineering offices of contracted firms to receive job training under the supervision of qualified engineers. Tasks completed as part of the internship must be approved by an authorized work supervisor. Credit is granted upon faculty approval of periodic review reports and a final summary report describing the work performed. Minimum time 200 hours. Prerequisites: Junior standing and Permission of the department. *Pass/Fail Grading. One semester; three credits*

ECE 497, 498, 499. TOPICS IN ELECTRICAL AND COMPUTER ENGINEERING I, II, III (Formerly EE 497,498,499)

Directed work on a special problem. Problems of an interdisciplinary nature are encouraged. A written report is required. A contract outlining the scope of the project is required prior to the initiation of work. Prerequisite: Senior standing and a duly executed contract. *One semester each; one, two, and three credits*

ENGLISH COURSES

Requirements for the degree are found on Pages 49 and 50.

ENG 100. DEVELOPMENTAL COMPOSITION I

Intensive work on basic grammar, punctuation, sentence structure, paragraph development, and reading skills designed to prepare students for ENG 111. Separate sections will be offered for native and non-native speakers. Offered in the Fall semester. *One semester; three credits*

ENG 111. ENGLISH COMPOSITION I

An introduction to rhetorical modes and methods for critical reading. Writing sequences with practical application of specific strategies for invention, drafting, frequent revision, peer review, and editing. Offered in the Fall and Spring. Honors Program students typically take ENG 231 and 232 instead of ENG 111 and 112 and a literature course. *One semester; three credits*

ENG 112. ENGLISH COMPOSITION II

An introduction to argumentative strategies, research skills, and other applied writing. Students will write several short pieces and a research paper. Special sections which focus on a specific topic, such as "censorship" or "gender," may be designated. Prerequisites: ENG 111. Offered in the Fall and Spring. Honors Program students typically take ENG 231 and 232 instead of ENG 111 and 112 and a literature course. *One semester; three credits*

ENG 211. INTRODUCTION TO LITERATURE I

A study of the literary forms of the novel and the short story, including the reading of significant world novels and short stories. This course will include an emphasis on writing skills cultivated in ENG 111, 112. Prerequisites: ENG 111, 112. Offered in the Fall and Spring. *One semester; three credits*

ENG 212. INTRODUCTION TO LITERATURE II

A study of the literary forms of drama and poetry, including the reading of significant world plays and poems. This course will include an emphasis on writing skills cultivated in ENG 111, 112. Prerequisites: ENG 111, 112. Offered in the Fall and Spring. *One semester; three credits*

ENG 215. GATEWAY COURSE FOR MAJORS

A survey of the elements of poetry, drama, and fiction, and an introduction to contemporary critical approaches and MLA style. Will include an emphasis on writing about literature and incorporating critical research. For English, ECCM, and English Education majors, this course is required before enrolling in any 300-400 level English course. *One semester; three credits.*

ENG 221. SURVEY OF BRITISH LITERATURE I

A survey of the representative prose and poetry writers of Great Britain from the beginnings through the 18th Century. Fulfills ENG 211 requirements. Prerequisites: ENG 111, 112 or Permission of Department Chair. *One semester; three credits*

ENG 222. SURVEY OF BRITISH LITERATURE II

A survey of the representative prose and poetry writers of Great Britain since 19th-century

Romantic Period. Fulfills ENG 212 requirement. Prerequisites: ENG 111,112 or Permission of Department Chair. Offered in the Spring semester. *One semester; three credits*

ENG 231. HONORS SURVEY OF WORLD LITERATURE I

A survey of significant prose and poetry writers of world literature from ancient times through 1600. This course will include an emphasis on writing skills. ENG 231 by itself can be substituted for ENG 111. Prerequisite: Membership in the Honors Program. Offered in the Fall semester. *One semester; four credits*

ENG 232. HONORS SURVEY OF WORLD LITERATURE II

A survey of significant prose and poetry writers of world literature from 1600 through the present. This course will include an emphasis on writing skills. ENG 232 by itself can be substituted for ENG 112. ENG 231 and 232 together can be substituted for ENG 111, 112, and one of the following: ENG 211, 212, 221, or 222. Prerequisite: Membership in the Honors Program. Offered in the Spring semester. *One semester; four credits*

ENG 240-249. SPECIAL TOPICS

Topics vary with the instructor. Prerequisite: ENG 111,112 or ENG 231, 232. *One semester; three credits*

ALL 300 AND 400 LEVEL COURSES ARE OPEN TO STUDENTS WHO HAVE COMPLETED ONE 200 LEVEL ENGLISH COURSE (211, 212, 221, 222, 231, 232). ENGLISH, ECCM, AND ENGLISH EDUCATION MAJORS MUST HAVE COMPLETED ENG 215.

ENG 315. HISTORY OF THE THEATRE

An in-depth study of the theatre including samples of dramatic literature from ancient Greece to the present. (Same as THEA 315) *One semester; three credits*

ENG 331. AMERICAN LITERATURE TO 1865

A study of the representative prose and poetry writers of American literature set against the political, religious, and philosophical backgrounds from the Colonial Period through the Romantic Period. *One semester; three credits*

ENG 332. AMERICAN LITERATURE FROM 1865

A study of representative prose and poetry writers of American literature set against the social, political, and philosophical backgrounds since the Romantic Period. *One semester; three credits*

ENG 339. EIGHTEENTH-CENTURY BRITISH NOVEL

Extensive reading in novels by representative eighteenth-century British novelists such as Defoe, Richardson, Fielding, Smollett, and Sterne. *One semester; three credits*

ENG 340. NINETEENTH-CENTURY BRITISH NOVEL

Extensive reading in novels by representative nineteenth-century British novelists such as Austen, the Brontes, Dickens, Eliot, and Hardy. *One semester; three credits*

ENG 341. NINETEENTH-CENTURY AMERICAN NOVEL

Extensive reading in representative nineteenth-century American novels, set against the social, political, and literary backgrounds of their times. *One semester; three credits*

ENG 342. AMERICAN ROMANTICISM

A study of the representative influences, characteristics, and figures of the American Romantic Movement from 1830 to 1860. *One semester; three credits*

ENG 343. LITERATURE OF THE AMERICAN SOUTH

A survey of Southern American literature, including its background and themes, with emphasis on twentieth-century writers such as Faulkner, Welty, and Warren. *One semester; three credits*

ENG 351. MODERN NOVEL

An examination of modern modes of fiction through representative novelists and the stylistic concepts that shape their expression. *One semester; three credits*

ENG 352. MODERN POETRY

A study of theory and representative poets in the United States, Great Britain, and Ireland from 1900 to the 1960s. *One semester; three credits*

ENG 354. MODERN DRAMA

An examination of modern American drama from 1880-1960, beginning with a survey of late nineteenth-century European works followed by an intensive study of major playwrights and movements of the twentieth century. *One semester; three credits*

ENG 361. AFRICAN-AMERICAN LITERATURE

A study of poetry and prose by representative African-American writers, reflecting the development of African-American literature in the United States. *One semester; three credits*

ENG 362. WOMEN IN LITERATURE

An examination of literature by women in light of feminist literary theory. *One semester; three credits*

ENG 370. ADVANCED PRACTICAL GRAMMAR

The forms, relationships, and functions of language with emphasis on the elements of words and sentences. *One semester; three credits*

ENG 371. BUSINESS WRITING

An examination of logical and psychological patterns of business communication and adaptation to varying audiences. A study of forms of written and oral communication in the business world from letters for both routine and problem situations to memos, proposals, short and long reports, in the context of relevant technologies. Offered in the Fall and Spring. *One semester; three credits*

ENG 373. ADVANCED COMPOSITION

A study of rhetorical theory and rhetorical models accompanied by advanced practice in composition. *One semester; three credits*

ENG 375. SCIENTIFIC AND TECHNICAL WRITING

An examination of the principles of effective communication in industry, business, and government with emphasis on practical writing skills for technical articles, reports, proposals, and documentation. Heavy emphasis on the computer as the technical writer's workspace. *One semester; three credits*

ENG 376. CREATIVE WRITING

A workshop in writing fiction and/or poetry. Texts will be assigned for discussion of techniques and form. *One semester; three credits*

ENG 377. TECHNOLOGY FOR THE ARTS

A practical introduction to the working world of electronic texts and electronic publication.

Students will design and create websites as well as publishing projects while they explore the world of digital photography. To provide the language and conceptual context for cybertext, lectures and discussions include the history of ink-and-fiber publishing as well as the emergence of hypertext and the internet. *One semester; three credits*

ENG 380-389. SPECIAL TOPICS

Topics vary with the instructor. Prerequisite: ENG 111, 112, and one 200 level English course (211, 212, 215, 221, 222, 231, 232). *One semester; three credits*

ENG 390-399. HONORS ENGLISH SPECIAL TOPICS

Special topics in English open to members of the Honors Program or by Permission of the instructor. *One semester; one to four credits*

ENG 432. MEDIEVAL LITERATURE

A study of representative works, European as well as British, from the Medieval Period. *One semester; three credits*

ENG 440. CHAUCER

A study of Chaucer's major works with emphasis on *The Canterbury Tales* and *Troilus and Criseyde*. *One semester; three credits*

ENG 441. SHAKESPEARE

An extensive and intensive study of both the comedies and tragedies. *One semester; three credits*

ENG 442. RENAISSANCE LITERATURE

A study of the major poets and prose writers of the English Renaissance Period including Spenser, Marlowe, and others. *One semester; three credits*

ENG 443. MILTON

A study of Milton's poetry with emphasis on *Paradise Lost*. *One semester; three credits*

ENG 444. RESTORATION AND THE EIGHTEENTH CENTURY

Dryden, Pope, Swift, and Johnson together with minor writers in poetry, prose, and drama. *One semester; three credits*

ENG 445. ROMANTIC PROSE AND POETRY

Wordsworth, Coleridge, Byron, Shelley, Keats-their practice and theory-as well as the Romantic essayists. *One semester; three credits*

ENG 446. VICTORIAN PROSE AND POETRY

Tennyson, Arnold, Browning, Hopkins, Carlyle, Newman, Ruskin-their lyrics and essays. *One semester; three credits*

ENG 447. SEVENTEENTH-CENTURY POETRY

A study of the poets of the seventeenth century including Jonson, Donne, Herbert, Marvell, Herrick, Lady Mary Wroth, and Aemilia Lanyer. *One semester; three credits*

ENG 450. CONTEMPORARY LITERATURE

A study of American and British fiction, poetry, and drama of the past twenty-five years. *One semester; three credits*

ENG 460-469. SPECIAL TOPICS

Topics of special interest including Comic Drama, Literary Non-Fiction, Tragic Drama, Detective Fiction, Publishing History of the United States, Baseball in American Literature, etc. Topics vary with instructor. Prerequisite: one 200 level English class (211, 212, 215, 221, 222, 231, 232). *One semester; three credits each*

ENG 479. JUNIOR SEMINAR

This course should be taken in the Spring semester of the junior year. Students will examine contemporary critical approaches to literature and will engage in preliminary work on their senior seminar thesis. Offered in the Spring semester. *One semester; one credit*

ENG 480. SENIOR SEMINAR

This course should be taken during the Fall semester of the senior year. In the course students will examine methods and approaches to literary research and will produce a major term paper, their senior thesis, on a writer or literary theme of their choosing. Offered in the Fall semester. *One semester; three credits*

ENG 486. CASTINGS INTERNSHIP

Experience in editing CBU's literary magazine. For editor(s) only. Students may enroll in this course more than one time. *Pass/Fall Grading. One semester; one credit*

ENG 487. HONORS JOURNAL INTERNSHIP

Experience in soliciting submissions for and editing the Honors Journal. Prerequisite: Honors Program membership and Approval by the Honors Program Director. Students may enroll in this course more than one time. *Pass/Fail Grading. One to two semesters; one to three credits*

ENG 488. WRITING CENTER TUTOR PRACTICUM

A practical introduction to the problems and management of a writing center and to the skills of one-to-one intervention in the student's writing process. Enrollment limited to Writing Center Tutorial Staff. Students may enroll in this course more than one time. *Pass/Fail Grading. One semester; one credit.*

ENG 489. INTERNSHIP

Major-related work experience through which students apply English subject matter skills to professional activity. Prerequisite: Junior standing and Permission of the English faculty. Offered in the Spring Semester. One hour per week in class required. *One semester; three credits.*

ENG 490-498. RESEARCH TOPICS IN ENGLISH

Original writing projects or independent study and research in literature pursued under the guidance of a member of the English faculty. Syllabus and credit hours contracted by the student with the English Department. *One semester each; one to three credits each*

■ FINANCE COURSES

Requirements for the major are found on Page 75.

FIN 327. FINANCIAL MANAGEMENT I

An introduction to the basic concepts, principles and analysis techniques of finance as applied to business organizations. The basis for virtually all financial analysis methodology lies in discounted cash flow analysis which is covered in this course. DCF techniques are then applied to areas of basic corporate decision-making involving the acquisition or replacement of physical assets and the decision to pursue capital projects. Finance 327 is a quantitative, problem solving course. Prerequisites: ACCT 260, ECON 212, ITM 153, and MATH 105. *One semester; three credits*

FIN 340. INVESTMENTS (Formerly FIN 429)

Finance 340 covers the principles governing the selection of investment media, topics in modern portfolio theory, and techniques of analysis and evaluation as applied to various investment alternatives. The functioning of security markets and how financial assets are traded as well as valuation techniques for bonds, equity instruments, options and futures are covered. Emphasis is on gaining a more in-depth understanding of financial investment alternatives, their valuation and analysis. Prerequisite: FIN 327. *One semester; three credits*

FIN 346. PERSONAL FINANCE

The course is designed to acquaint the student with basic principles necessary to efficiently manage personal financial affairs. Special attention is given to the areas of budgeting, insurance, consumer credit, housing cost problems, and investment opportunities. This course cannot be used to fulfill any of the Finance requirements in the School of Business. *One semester; three credits*

FIN 350. FINANCIAL MARKETS

Survey of financial markets and institutions and their individual characteristics; sources of supply of and demand for funds in each market, the complex interrelations among markets and the role of each in the process of capital formation and allocation. Prerequisites: FIN 327, ECON 303. *One semester; three credits*

FIN 400. FINANCE INTERNSHIP (Formerly BUS 400)

Under the supervision of a faculty member from the appropriate department, students in the School of Business, after receiving the approval of the faculty, are placed in the offices of cooperating firms to receive on-the-job training under the supervision of members of the firm. Credit is granted upon acceptance of periodic reports and a final summary report of work done verified by the authorized supervisor and the instructor. *Pass/Fail Grading. One semester; three credits*

FIN 410. DERIVATIVE SECURITIES

Structure, operation, and mechanics of trading in markets for futures, swaps, options, synthetic options, and futures on options; transfer of risk and stabilization of prices through futures trading; buying/selling strategies; valuation of futures contracts and options. Applications of derivatives to hedging and speculating strategies. Prerequisite: FIN 340. *One semester; three credits*

FIN 427. FINANCIAL MANAGEMENT II (Formerly FIN 328)

Extends the knowledge of financial management and provides insights into the complexity of the decisions faced by practicing financial managers. Various topics are covered in the course with major emphasis on capital budgeting. Other topics covered include working capital management, international mergers and acquisitions, financial engineering, optimal capital structure, and enterprise value. Prerequisite: FIN 327. *One semester; three credits*

FIN 430-436. SPECIAL TOPICS IN FINANCE

Readings and discussions of recent significant finance and investment literature. Possible subject areas include leveraged buyouts, mergers and acquisitions, junk bonds, speculative markets, fixed-income investments, foreign markets and exchanges, and hedging. Prerequisites: FIN 327, 340. *One semester; three credits*

FIN 437. INTERNATIONAL FINANCIAL MANAGEMENT

The international aspects of financial management. Topics include currency markets and exchange rate determination, transfer of funds, banking services, international financial institutions, parity conditions, foreign exchange exposure and management, and valuation of inter-

national projects. Prerequisite: FIN 427. *One semester; three credits*

FIN 440. PORTFOLIO MANAGEMENT

The analysis and valuation of securities and the selection, timing, diversification, and other aspects of supervising the management of investment portfolios. Students analyze the composition of, make buy/sell recommendations for, and evaluate the performance of a portfolio during the semester. Prerequisite: FIN 340. *One semester; three credits*

FIN 450. INVESTMENT CHALLENGE I

Students learn the essentials of portfolio management by making investing decisions for an actual client. Students will prepare, buy, hold, and sell recommendations to present to an investment committee. These recommendations will be used to invest \$350,000 of the Tennessee Valley Authority's portfolio. Students will compete with other colleges and universities for prize money. Class enrollment is limited. Application for participation must be made prior to registration. Permission of TVA Investment Challenge Coordinator required. For further information or an application form, contact Dr. Bevalee Pray at bpray@cbu.edu. Prerequisite: FIN 327. *One semester; three credits*

FIN 451. INVESTMENT CHALLENGE II

Students gain advanced knowledge of portfolio management by determining sector weightings, choosing equity investment recommendations, and tracking performance of an actual portfolio. Students will deal directly with a client, TVA, and compete among other schools for prize money. Class enrollment is limited. Application for participation must be made prior to registration. Permission of TVA Investment Challenge Coordinator required. For further information or an application form, contact Dr. Bevalee Pray at bpray@cbu.edu. Prerequisite: FIN 450. *One semester; three credits*

■ FOREIGN LANGUAGE COURSE REQUIREMENTS (for courses taught at CBU)

When a student has passed two or more years of the *same* foreign language with at least a "C" average in high school, she/he may choose one of the following options:

1. Enroll in the same foreign language studied in high school at the 201 level (recommended option) or at the 101 or 102 level (permitted options).
2. Enroll at the elementary level (101) of a foreign language not studied in high school (Note that a 101 course must be followed by the corresponding 102 course in order to acquire elementary competency in a language.)

A minimum of thirty minutes per week in the language laboratory is required for all 100 and 200 level courses.

Upper-division language courses may be taken concurrently with intermediate courses with prior approval of the instructor.

Upper-division language courses may be offered as tutorial courses with the availability and the consent of the instructor and the approval of the Chair of the Department of Literature and Languages.

■ FOREIGN LANGUAGE COURSES

FORN LANG 101, 102. SPECIAL TOPICS IN FOREIGN LANGUAGES

The study of a language other than French, German or Spanish. Offered in sequence in the Fall and Spring. *Two semesters; six credits*

■ FRENCH COURSES**FREN 101, 102. ELEMENTARY FRENCH**

Fundamentals of grammar and pronunciation, elementary conversation. Second semester includes reading and translation of texts of graded difficulty. Not open for credit to native speakers of French. Offered in sequence in the Fall and Spring. *Two semesters; six credits*

FREN 201, 202. INTERMEDIATE FRENCH

A review of French grammar with composition and conversation. Second semester includes the reading of French short stories selected from French literature, designed to increase the student's vocabulary and to contribute to his mastery of idiomatic constructions. Prerequisites: FREN 101, 102. Not open for credit to native speakers of French. Offered in sequence in the Fall and Spring. *Two semesters; six credits*

FREN 301, 302. COMPOSITION AND CONVERSATION

Continued study of French grammar and composition. Drill on idioms and difficult constructions with reading in French civilization. Prerequisites: FREN 201, 202 or the equivalent. Not open for credit to native speakers of French. Offered in sequence in the Fall and Spring. *Two semesters; six credits*

FREN 311. SURVEY OF FRENCH LITERATURE I

A survey of the chief French authors and their works from the beginnings through the Golden Age. Readings, lectures, discussions. Prerequisite: Two years of college French or the equivalent. Offered in the Fall semester. *One semester; three credits*

FREN 312. SURVEY OF FRENCH LITERATURE II

A survey of the chief periods and movements in French literature from the 18th to the 20th century. Reading in French of selections from the masterpieces of the principal authors of these centuries. Prerequisite: Two years of college French or equivalent. *One semester; three credits*

FREN 313. FRENCH CIVILIZATION I

An overview of the chief historical, political, and artistic periods in French civilization from the Middle Ages through the 18th century. Readings, lectures, discussions, films, and presentations. Prerequisite: Two years of college French or equivalent. Offered in the Fall semester. *One semester; three credits*

FREN 314. FRENCH CIVILIZATION II

Continued study of the principal historical, political, and artistic periods in French civilization, with an emphasis on the 19th and 20th centuries. Readings, lectures, discussions, films, and presentations. Prerequisite: Two years of college French or equivalent. Offered in the Spring semester. *One semester; three credits*

FREN 315. BUSINESS FRENCH I

An introduction to business and technology in the French-speaking world from a personal, everyday life perspective. Study includes banking, telecommunications, computers, and the Internet. Prerequisite: Two years of college French or the equivalent. Offered in the Fall semester. *One semester; three credits*

FREN 316. BUSINESS FRENCH II

Continued study of business and technology in the French-speaking world. Units include interviewing, resume writing, business correspondence, and corporate organization. Prerequisite: Two years of college French or the equivalent. Offered in the Spring semester. *One semester; three credits*

FREN 380-389. SPECIAL TOPICS IN FRENCH.

Topics of special interest related to French literature, language, or culture. Prerequisites: French 302 and 312 and permission of instructor. Offered in Fall or Spring. *One semester; three credits*

FREN 400-410. RESEARCH TOPICS IN FRENCH

Original writing projects or independent study and research in literature, pursued under the guidance of a member of the French faculty. Syllabus and credit hours contracted by the student with the French professor. *One semester each; one to three credits each*

FREN 480-489. SPECIAL TOPICS IN FRENCH.

Topics of special interest related to advanced study of French literature, language, or culture. Prerequisites: French 302 and 312 and permission of instructor. Offered in Fall or Spring. *One semester, three credits*

The remainder of the foreign language courses under this heading are offered on the campus of Rhodes College under the instruction of Rhodes faculty. See the Dean of the School of Arts concerning these classes.

■ GEOGRAPHY COURSES**GEOG 280. GEOGRAPHY SURVEY**

The study of the general nature of the earth, focusing on topography and climate of land areas, ways of living of the world's peoples, and relationships of people, their resources and environment. *One semester; three credits.*

GEOG 310. PHYSICAL GEOGRAPHY

An introduction to environmental and earth science, particularly weather and climate. Study of atmospheric phenomena, global climate systems and patterns; emphasis on the development of map and globe skills. *One semester; three credits*

GEOG 325. REGIONAL GEOGRAPHY

Spatial analysis of economic, cultural, and physical characteristics of selected areas of the world. Comparisons of developing and industrialized nations involving population distribution, spatial patterns of economic activity, and human-environmental relationships. *One semester; three credits*

GEOG 340. HUMAN GEOGRAPHY

Study of cultural, political, and economic aspects of major ethnographic areas and selected cultures of the world. *One semester; three credits*

■ GERMAN COURSES

The foreign language courses under this heading are offered on the campus of Rhodes College under the instruction of Rhodes faculty. See the Dean of School of Arts concerning these classes.

GRM 101-102. ELEMENTARY GERMAN.

Fundamentals of the German language: pronunciation, grammar, speaking, reading and writing. Offered in sequence in the Fall and Spring. *Two semesters; eight credits*

GRM 201-202. INTERMEDIATE GERMAN.

Continued practice of the basic language skills. Particular emphasis is placed on the reading and discussion of modern texts of literary and cultural interest, systematic vocabulary building, and simple composition. Continued oral practice in language laboratory and in small groups with native speakers. Prerequisite: German 102 or the equivalent. Offered in sequence

in the Fall and Spring. *Two semesters; eight credits*

GRM 301. COMPOSITION AND CONVERSATION

Training in written and oral German expression; intensive work with tapes; discussion of topical subjects, based on readings from newspapers and magazines and German news programs; individual reports. Prerequisite: GRM 202. Offered in Fall semester. *One semester; three credits*

GRM 302. ADVANCED GRAMMAR

A study of the more difficult aspects of the German language. Further training in written and oral communication, translation exercises. Prerequisite: GRM 301. Offered in the Spring semester. *One semester; three credits*

GRM 350-359. SPECIAL TOPICS IN GERMAN.

Topics of special interest related to German literature, language, or culture. Prerequisite: German 202 or the equivalent. Offered in Fall or Spring. *One semester; three credits*

GRM 450-459. SPECIAL TOPICS IN GERMAN.

Topics of special interest related to advanced study of German literature, language, or culture. Prerequisite: at least three 300-level courses in German or permission of instructor. Offered in Fall or Spring. *One semester; three credits*

■ GLOBAL STUDIES COURSE

GS 200. FOUNDATIONS OF GLOBAL STUDIES

In this course we will explore the diverse and often conflicting meanings associated with the concept of globalization. We will examine world geography with respect to major regions and consider political, economic, and cultural systems with an eye to what it means in the 21st century to be or become a “global citizen.” The course will be interdisciplinary and will offer the students the opportunity to examine ways to “globalize” their horizons, their major disciplines, and their career paths. (Same as HUM 200). *One semester; three credits*

■ GREEK COURSES

The foreign language courses under this heading are offered on the campus of Rhodes College under the instruction of Rhodes faculty. See the Dean of School of Arts concerning these classes.

GREK 101-102. ELEMENTARY GREEK.

An introduction to the fundamentals of the ancient Greek language. Although the primary goal of the elementary sequence of courses through Greek 201 is to prepare students to use ancient Greek documents in a wide variety of academic contexts, students will develop all four language skills: reading, writing, listening, and speaking. Offered in sequence in Spring and Fall. *Two semesters; eight credits*

GREK 201. INTERMEDIATE GREEK.

The final course in the elementary language sequence. To prepare students for the advanced reading courses, the course will emphasize reading and discussing documents primarily from the fifth and fourth centuries BCE. In addition to developing their reading comprehension, students will continue to work on their aural-oral proficiency. Prerequisite: Greek 102 or the equivalent. Offered in Spring. *One semester; four credits*

GREK 210-219. READING COMPONENT IN GREEK.

Readings from classic texts of literature, history, culture, biography, or religion. Prerequisite: Greek 201 or the equivalent. Offered in Fall or Spring. *One semester; one to three credits*